The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 136 NO. 15 — CHICAGO, ILLINOIS — APRIL 10, 1948

COPYRIGHT, 1948, BY AMERICAN MEDICAL ASSOCIATION

FIVE YEAR FOLLOW-UP OF GLAUCOMAS

PETER C. KRONFELD, M.D.
Chicago
and
H. ISABELLE McGARRY, M.D.
Evanston, Ill.

From the Illinois Eye and Ear Infirmary, University of Illinois.
Read before the Section on Ophthalmology at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., June 11, 1947.

To the almost innumerable reports on the effect of treatment on the course of glaucomas, another one is added herewith in the hope that it will justify its presentation by meeting more fully the requirements for such reports as set by Sidney A. Fox in 1943.[1] Those requirements were: (1) the adoption of a standard nomenclature for glaucoma, (2) the provision of a standard preoperative classification of glaucoma into groups and subgroups, (3) a systematic evaluation of all the important operative procedures, old and new, in all the common types of glaucoma, (4) a systematic follow-up for definite periods of time and (5) evaluation of results on the basis of generally adopted, uniform criteria.

While fulfilment of requirements 1 and 2 will be impossible until a representative, probably international committee of experts agrees on a standard nomenclature and classification of the glaucomas, we believe that the distinction between the narrow angle (iris block) and the wide angle type among the so-called primary glaucomas (O. Barkan[2]) expresses such a fundamental difference in pathogenesis and mechanism that, at present at least, it appears to be the most logical basis for classification. The fact brought out in this study that the results of treatment prove significantly different in the two types adds another piece of evidence in favor of this classification.

The surgical operations referred to in this report were performed by surgeons of such widely varying background and such different general attitude toward the problem of glaucoma that the net result as to choice of operation in the specific types and stages of the glaucomas came close to a systematic evaluation of all more common operations.

We believe that requirements 4 and 5 have been met in this report. The follow-up was made by the medical staff of the Glaucoma Clinic of the Illinois Eye and Ear Infirmary. The staff consists of two or three ophthalmologists whose training, experience and disposition qualify them for the job of objective, impartial observer and recorder in the follow-up of the glaucomas.

As criteria of the efficacy of the treatment, we have considered the course of the glaucomatous involvement of the optic nerve as disclosed by perimetry and measurements of visual acuity, as well as the ocular tension.

The specific object of this study has been the establishment of the relationship between the course of the glaucomatous involvement of the optic nerve and the prevailing range of tension in the various stages of glaucomas.

MATERIAL AND PROCEDURE

This report is based on the observation in the Glaucoma Clinic of the Illinois Eye and Ear Infirmary of definite (not borderline) cases of so-called primary glaucoma in adults. In accordance with the general plan of this study, the patients, or rather their individual eyes, were classified as to stage of the disease, course of the disease and prevailing tension range. Each eye was thus classified at the time when, as the result of treatment, the tension had become stabilized within a definite tension range, and again five years later. Only eyes which maintained this tension range—as evidenced by frequent tonometric readings during morning hours—for the entire period of five years were included in this study.

The classification as to the stage of the disease was based entirely on perimetric findings. Three stages: early, moderately advanced and far advanced, were distinguished. Because of a certain perimetric routine followed in the glaucoma clinic, it became advisable to modify the limits of Gjessing's[3] three groups as follows:

The limits of stage 1 (early glaucomas) were the perfectly normal field on the one hand and one to two, narrow, incomplete to complete Bjerrum scotomas (for 3/1000 white targets) with normal position of the isopter for 3/330 white on the other hand. The papilla was either not perceptibly altered or showed early glaucomatous changes.

Stage 2 (moderately advanced glaucomas) was characterized by a "merger" between the Bjerrum scotoma and the peripheral constriction on the nasal side resulting in extensive defects chiefly in the nasal half of the field. The nerve head showed definite glaucomatous changes.

Stage 3 (far advanced glaucomas) was considered to be present in the cases in which after loss of most of the nasal field the remaining portions had been invaded. The limits of this group were, on the one hand, a somewhat reduced temporal half with well functioning center and, on the other hand, a central island of vision with or without a temporal island or vice versa. Eyes with a visual acuity of 3/200 or less at the inception of treatment were excluded from this study because perimetry could not be done with sufficient accuracy.

The prevailing tension range was estimated from the recorded tensions on the patient's glaucoma clinic record. These tensions had been determined with Schiøtz

1. Fox, S. A.: Am. J. Ophth. **26**: 31, 1943.
2. Barkan, O.: Am. J. Ophth. **21**: 1099, 1938.
3. Gjessing, H. G. A.: Acta ophth. **5**: 149, 1927.

tonometers, Schiøtz's conversion table of 1924 being used with J. Friedenwald's corrections for average ocular rigidity.[4] These tonometrics had been done between the hours of 10 a. m. and 2 p. m. and, in most instances, frequently enough to establish the patient's prevailing tension range, since the physician in charge of the glaucoma clinic was just as profoundly interested in this factor as we were. To what extent the patient's tension at other times of the day may have deviated from this prevailing tension range will be discussed later

Four tension ranges were distinguished:

Range 1	(hypotony)	From immeasurably low to 15 mm. Hg.
Range 2	(normal)	From 15 to 27 mm. Hg.
Range 3	(moderately elevated)	From 27 to 35 mm. Hg.
Range 4	(high)	From 35 mm. up

With regard to the course of the glaucomatous changes in the optic nerve there existed three possibilities: the disease might remain stationary, it might be progressive (further loss of visual field), or regressive (gain of visual field) The last possibility, that is, the reversible field changes associated with short episodes of elevated intraocular pressure and the slight improvements seen occasionally in chronic glaucomas after normalization of tension, have not been considered in this paper. Thus, there remained only the two possibilities of further progression or no further loss. In analyzing the changes in the visual field after surgical procedures the following types of further loss of visual field could be distinguished: (1) loss of visual field due to operative complications, such as traumatic cataract, intraocular or retinal hemorrhages, postoperative iridocyclitis; (2) loss of visual field directly following uncomplicated operations and reaching a standstill within two months after the operation; (3) loss of visual field due to diseases other than and unrelated to glaucoma (vascular or senile retinal or choroidal diseases, senile cataract); (4) gradual loss of visual field starting four to six months postoperatively and continuing from there in the manner generally thought to be typical of glaucoma.

In eyes treated with miotics the following types of further loss of visual field could be distinguished: (1) loss of visual field due to diseases other than and unrelated to glaucoma, and (2) gradual loss of visual field characteristic of and attributable to elevation of intraocular pressure or undetected phases thereof.

Only loss of visual field of type 4 in the surgically treated and of type 2 in the conservatively treated patients was considered to be truly glaucomatous and indicative of progression of the glaucomatous involvement of the optic nerve. Only in those cases in which on at least three occasions (during the five year period of observation) unquestionable further loss of field was recorded was the disease classified as being progressive. To qualify as unquestionable the loss of field had to be definite as compared to the immediately preceding test and had to be confirmed by all succeeding tests. In most of the progressive cases, unfortunately, unquestionable loss as compared with the immediately preceding test was recorded more than three times during the five year period.

In the majority of cases this further loss of field was attributable to continued elevation of intraocular pressure. There was, however, a goodly number of eyes with progressive course of the disease in the presence of normalized intraocular pressure. The possibility of undetected phases of elevated pressure in these cases will be discussed later.

If, during the five year period, such unquestionable loss was recorded less than three times the case was considered as stationary. Needless to say, in the stationary group were included those cases in which no further loss of field occurred during the five year period.

The final step in the classification was the distinction between narrow angle and wide angle glaucomas. This distinction was made on the basis of the gonioscopic and clinical observations and in accordance with the procedure outline in a previous publication.[5] The distinction between the two types could not always be made with absolute certainty. In this report there is a possibility of a few wide angle glaucomas having been mislabeled as narrow angle glaucomas. However, the conclusions which we have drawn could not have been significantly affected by such errors in classification.

The observation period of five years was chosen in preference to any shorter period because of its obvious value in demonstrating the truly stationary course of the disease after normalization of the ocular tension In the cases in whom the disease progressed despite normalization of tension a shorter period was sufficient to demonstrate this phenomenon convincingly.

RESULTS

This report is based on 225 eyes with wide angle and 100 eyes with narrow angle glaucoma. We believe that the proportion of 225 to 100 does not express the true incidence of the two types in an unselected population. We would estimate that 25 per cent or less of all so-called primary glaucomas are of the narrow angle type. The reason why this narrow angle type is found more frequently in a group of glaucomas followed for five years is its greater responsiveness to the ordinary methods of treatment as compared with the wide angle type. As a group, the patients with the narrow angle type are better satisfied, happier, more stable and less apt to seek help elsewhere. The latter is a characteristic and understandable reaction of the patient with the wide angle type who has been operated on unsuccessfully two or three times and has been advised to submit to more surgical treatment.

Table 1 shows the distribution of the material according to stage of the disease at the patient's first visit to the infirmary, as well as the over-all effect of the treatment on the prevailing tension range.

As a group, the patients with narrow angle glaucoma presented themselves at an earlier stage of the disease than the patients with wide angle glaucoma. The acuteness of the symptoms of narrow angle glaucoma in its dramatic as well as in its milder forms induces the patient to seek medical care at an early stage of the disease, in contradistinction to the fundamentally chronic wide angle glaucoma of which most patients do not become aware until a considerable portion of visual field has been lost. The relative frequencies of the three stages at the first visit to the clinic would not have been appreciably altered by listing patients instead of individual eyes.

Table 1 also shows that normalization of tension is accomplished in a considerably and significantly larger percentage of narrow angle glaucomas (84 to 88 per cent) than of wide angle glaucomas (52 to 58 per cent).

To evaluate the figures of columns 5, 6, 7 and 8 of table 1 properly, a little more must be said about the procedure followed in classifying the material.

4. Friedenwald, J. S.: Am. J. Ophth. **20**: 985, 1937.
5. Kronfeld, P. C.: Gonioscopic Correlates of Responsiveness to Miotics, Arch. Ophth. **32**: 447 (Dec.) 1944.

V 13
1948

To qualify for a place in one of these four columns the particular eye had to fulfil the respective requirement, that is, be normalized or not normalized by either surgical treatment or miotics during the whole five year period. Each eye was listed but once, namely as (*a*) normalized by surgical treatment if miotics had been tried unsuccessfully and surgical treatment alone, without the help of miotics, had succeeded in normalizing the tension; (*b*) normalized by miotics if the latter had normalized the tension without surgical treatment having been tried or after unsuccessful surgical treatment; (*c*) not normalized by surgical treatment if both surgical treatment and miotics, separately and together, had failed to normalize the tension, and (*d*) not normalized by miotics if the latter had failed to normalize the tension without surgical treatment ever having been tried.

In principle, surgical treatment was advised only after miotics had been tried for a sufficiently long period and had failed to normalize the ocular tension. Naturally, surgical advice was given more strongly and taken more readily if further loss of visual field had occurred during the period of conservative treatment or if the glaucoma was of the acute type.

Table 1, therefore, implies, though it does not state so explicitly, that miotics had failed not only in the eyes listed in column 8 but also in the eyes listed under 5 and 7. Thus, in the wide angle glaucomas of stage 1, the ratio of success to failure of miotics was 27:88 (0.31) and in the narrow angle glaucomas of the same stage 35:40 (0.88). We are convinced that the miotics are much more effective as tension-lowering agents in narrow than in wide angle glaucomas, but because of the fundamental difference in the course of the two types of glaucomas we doubt that the difference is accurately expressed in the two ratios (0.8 against 0.31). The dramatic course of narrow angle glaucoma, on the one hand, is apt to "scare" patient and surgeon into early operations[6] which might have been made unnecessary by application of a stronger miotic. The chronic course of wide angle glaucoma, on the other hand, is conducive to an attitude of procrastination on the part of the physician, as well as of the patient, especially if there is no rapidly progressive loss of field. That explains why 32 cases of wide angle glaucoma (stage 1) were permitted to remain with tension not normalized for five years. Failure of surgical therapy in the patient's other eye may have been additional evidence in favor of conservative therapy. In narrow angle glaucoma, the state of nonnormalized tension is usually painful and always associated with rapid loss of visual field, so that few patients persisted in their refusal of surgical treatment for five years. These characteristics of the two types of glaucoma make the results of conservative treatment not strictly comparable, but the greater efficacy of the miotics in the narrow angle group is obvious.

With regard to the results of surgical treatment, the comparison of the two groups is probably "fairer." Again, strikingly better results are recorded in narrow angle than in wide angle glaucomas, the ratio of success to failure being 31:6 and 34:22 respectively. The large majority of the operations in narrow angle glaucoma naturally were iridectomies.

The reason for this difference in responsiveness to therapy between the two types of primary glaucoma, we believe, lies in the difference in mechanism. There is good evidence to the effect that in narrow angle glaucoma the trabecula-canal of Schlemm mechanism is and remains normal until the trabecular spaces are completely closed off from the anterior chamber by goniosynechiae. The aim of the treatment is to keep the trabeculae accessible to the aqueous, which is easily accomplished with miotics or an iridectomy. In most wide angle glaucomas, on the other hand, the disturbance is probably due to impaired function of the trabecula-canal of Schlemm mechanism itself, and therefore much more deeply rooted than in narrow angle glaucoma. Failure of the miotics calls for an operation of the filtering type, the success of which is still, to a considerable degree, dependent on factors not completely understood and not under the control of the operator.

TABLE 1.—*Distribution of the Material (Eyes) According to Type of Glaucoma and Stage of Disease at Inception of Treatment; Effect of Treatment on Tension*

1	2	3	4	5	6	7	8
			Tension Normalized			Tension Not Normalized	
Type of Glaucoma	Stage of Disease	Number of Eyes	Total Number	By Surgical Treatment	By Miotics	By Surgical Treatment	By Miotics
Wide angle, 225 eyes.....	1	115 (51%)	61 (53%)	34	27	22	32
	2	56 (25%)	32 (57%)	26	6	16	8
	3	54 (24%)	28 (52%)	28	0	15	5
Narrow angle, 100 eyes.....	1	75 (75%)	66 (88%)	31	35	6	3
	2 and 3	25 (25%)	21 (84%)	19	2	4	0

A very different situation prevails with regard to iridectomy in cases of narrow angle glaucoma, in which the surgeon has under his control almost all the factors that determine the outcome of the operation. In view of the fundamental differences between the two types of so-called primary glaucoma, they will from here on be discussed separately.

So far we have described the composition of the material at the inception of therapy and the over-all effect of the treatment on the prevailing range of tension. We are now turning to the description of the course of the disease as related to or influenced by the prevailing tension range.

WIDE ANGLE GLAUCOMAS

The course of the glaucomatous involvement of the optic nerve under the influence of treatment intended to lower the tension is shown in three graphs (figs. 1, 2 and 3) corresponding to the three stages of the disease defined previously. The plan underlying the graphs is that of a coordinate system, with the tension range recorded on the ordinate against time (five years) on the abscissa. The horizontal line across the center of the graphs marks the 27 mm. level. Circular areas are used to indicate the number of eyes that exhibited the phenomenon to be illustrated, that is, the course of the glaucomatous involvement of the optic nerve. White is used to indicate the stationary and dark gray to black, the progressive course. Shaded circles indicate

6. We practice and advocate early operations for acute narrow angle glaucoma because of (1) the high percentage of successes of and the small risk entailed in iridectomies and (2) the frequent necessity to operate under less favorable conditions later on.

the "uncertain" state of the eyes at the inception of therapy. From these shaded circles, arrows, implying tension-lowering treatment, lead to the partly white, gray and black circles illustrating the phenomena of stationary or progressive course. The size of the white, gray or black sectors expresses the relative frequency with which these phenomena occurred within the respective group of eyes.

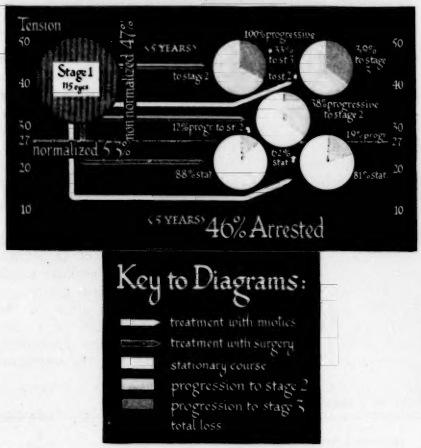

Fig. 1.—Wide angle glaucomas, stage 1.

Stage 1.—Graph 1 illustrates the relative frequency with which the stationary or progressive course occurred after normalization or nonnormalization of tension in eyes representing, at the inception of treatment, stage 1 of the disease. It was gratifying to find that after normalization of tension the course of the glaucomatous involvement of the optic nerve became stationary in 88 per cent of the surgically treated eyes and in 81 per cent of the conservatively treated eyes. Thus, the overwhelming majority of eyes of stage 1 showed favorable response to normalization of tension. The few eyes in which the disease continued to progress despite surgical normalization were borderline cases in that the field defect at the inception of treatment was almost of the magnitude characteristic of stage 2.

In every one of the nonnormalized eyes of stage 1 at the inception of treatment the disease progressed during the five year period; approximately two thirds of the eyes reached and remained within stage 2 while the remaining one third went on to stage 3. It is not clear from our material whether in the eyes with higher prevailing tension range the disease progressed further or faster than in the eyes with moderately elevated tensions. As was to be expected, good central visual acuity was maintained in 83 per cent of the nonnormalized eyes and became impaired as the result of glaucoma in only 17 per cent.

In a number of eyes the disease was consistently borderline in the sense that the treatment effected lowering of the tension to the range from 24 to 35 mm., with an average of between 27 and 30. The disease remained stationary in 62 per cent of these eyes and progressed in the remaining 38 per cent.

In summary, the eyes of stage 1 behaved as one would expect glaucomatous eyes to behave, the course of the disease of the optic nerve showing a close dependence on the prevailing tension range. Apparent independence occurred in only a few eyes in which the disease progressed despite normalization of tension. As stated before, the surgically treated eyes of this group were bordering on stage 2 at the beginning of treatment. Those treated conservatively do not prove independence with certainty, since miotics do not afford the same degree of protection against elevated tension "twenty-four hours a day" as surgical treatment. Thus, it may be said that in eyes with stage 1 of wide angle glaucoma independence of the glaucomatous involvement of the optic nerve from the prevailing tension range is rare enough to be considered an exception.

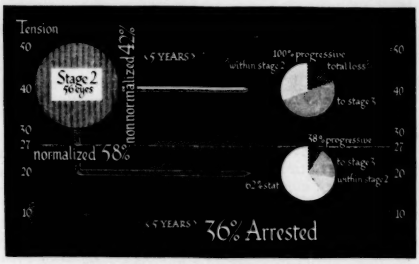

Fig. 2.—Wide angle glaucomas, stage 2.

Stage 2.—The striking feature with respect to eyes of stage 2 at the inception of treatment is the large (38) percentage of further progression of the glaucomatous involvement of the optic nerve in the group in which tension was normalized surgically. No comparable group treated with miotics was available for the obvious reason that in the face of further progression after normalization of tension by miotics the physician in charge naturally suspected the conservative treatment to be somewhat inadequate and resorted to surgical treatment. The progression proceeded in the

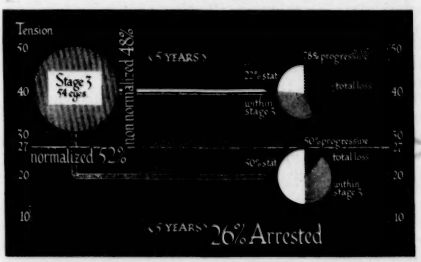

Fig. 3.—Wide angle glaucomas, stage 3.

stage 2 eyes in which the tension was normalized and in those in which it was not at about the same rate: About 30 per cent of the eyes in each group remained in stage 2, about 50 per cent of the eyes advanced to stage 3, and the remaining 20 per cent became entirely blind. Another characteristic feature of this stage was the frequent association of initially poor central visual acuity with marked to total further loss of central acuity and field on the one hand, and the frequent association

V 136
1948

of good initial visual acuity with a stationary course of the disease on the other hand.

Stage 3.—Eyes that were in stage 3 initially showed a behavior similar to that of eyes of stage 2. The percentage of further progression in tension-normalized eyes was still greater than in eyes of stage 2 (50 per cent against 38 per cent). The same relationship between initial central acuity and course of the disease prevailed in eyes of both stages. Twenty-three per cent of the group in which the tension was not normalized showed the remarkable feature of endurance of high tension ranges without further loss. These eyes showed initially small central or chiefly temporal field islands and represent the only examples of field remnants in primary glaucomas that sustained high ocular tension for five years without any loss.

NARROW ANGLE GLAUCOMAS

The course of narrow angle glaucoma under the influence of treatment intended to lower the ocular tension is shown in graphs 4 and 5. Under conditions of nonnormalization the glaucomatous disease progressed rapidly to total blindness. Under conditions of normalization the disease remained stationary during

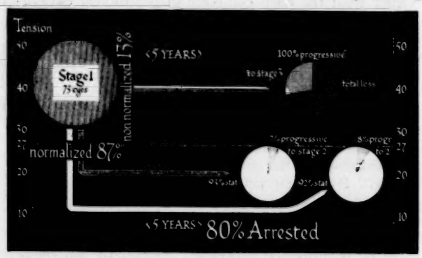

Fig. 4.—Narrow angle glaucomas, stage 1.

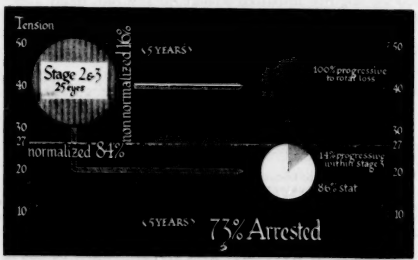

Fig. 5.—Narrow angle glaucomas, stages 2 and 3.

the five year and, in many instances, longer periods in approximately 90 per cent of all tension-normalized eyes, irrespective of the stage at which the normalization took place. Further progression occurred in less than 10 per cent of the normalized eyes of stage 1 and in a little more than 10 per cent of the normalized eye of stages 2 and 3, which is a strikingly low percentage compared to wide angle glaucomas.

COMMENT

This survey has brought to the fore two phenomena which, while not new in any sense of the word, are remarkable in that they suggest independence of the course of the glaucomatous involvement of the optic nerve from the prevailing tension range.

The first phenomenon, the further progression of the glaucomatous involvement of the optic nerve after normalization of tension, occurred in 35 eyes with wide angle and in 8 eyes with narrow angle glaucoma. The size of this group permits some general conclusion.

This phenomenon almost invariably became manifest toward the end of the first year of normalized tension. Thus, it did not require a period of observation of five years to establish with certainty the fact of further progression. The progression of the glaucomatous involvement of the optic nerve after normalization of tension takes the same course as the "true" glaucomatous disease as far as can be judged from perimetric and visual acuity findings. Despite the normalization of tension, the deterioration of the visual field continues in accordance with the pattern so well established for the glaucomas and so well described by Traquair [7] and Lauber.[8]

Another obvious characteristic of the phenomenon of further progression after normalization of tension is its more frequent occurrence in the more advanced stages of the wide angle glaucomas. The relative frequencies of 12, 38 and 50 per cent, respectively, of further progression for the three stages of our material of wide angle glaucomas agree closely with the observations of A. B. Reese,[9] presented before this society in 1939, and of J. W. Burke,[10] presented before the American Ophthalmological Society in the same year. In the words of the latter author, "the fields are best retained in those cases in which little damage has been suffered before operation."

In our series the narrow angle glaucomas differed significantly from the wide angle glaucomas in that further progression after normalization of tension was a less common phenomenon and independent of the stage of the disease at the inception of treatment. Further analysis showed that in the far advanced narrow angle glaucomas, in which the disease remained stationary after normalization of tension, the disks showed the characteristic picture of atrophy of the postneuritic type without excavation. In these cases one or a few severe acute attacks, rather than frequent mild attacks, had caused the loss of visual function. In the few narrow angle glaucomas that showed further progression, typical deep glaucomatous excavations were present, just as in the cases of advanced wide angle glaucoma. Further progression after normalization thus appeared to be associated with deeply excavated disks and nonprogression with flat disks.

Special attention was paid to a possible relationship between further progression of the glaucomatous involvement of the optic nerve and the prevailing tension within the normal range. The problem consisted of three parts, namely:

1. What evidence is there that eyes with wide angle glaucoma may have such a low ocular rigidity as to give normal tonometric readings in the presence of elevated intraocular pressure?

2. What evidence is there that eyes which, on frequent tonometries during morning hours, consistently

7. Traquair, H. M.: Clinical Perimetry, St. Louis, C. V. Mosby Company, 1935.

8. Lauber, H.: Das Gesichtsfeld, Munich, J. F. Bergmann, 1944.

9. Reese, A. B.: Value of Early Operation in Chronic Primary Glaucoma, Tr. Sect. Ophth., A. M. A., 1939, p. 58.

10. Burke, J. W.: Am. J. Ophth. **23**: 657, 1940.

gave readings below 27 mm. of mercury actually were tension normalized, that is, at all other times of the day would have given tonometric readings below 27?

3. What evidence is there that tension-normalized eyes may have such a low tension tolerance (H. S. Gradle [11]) as to be harmed by the normal tension range?

With regard to point 1, J. Friedenwald and D. Harrington (personal communication) have found that primary glaucomas possess average ocular rigidity. Thus, it is unlikely that in our group of eyes showing further progression after normalization of tension, a state of elevated intraocular pressure was masked by unusually low ocular rigidity.

With regard to point 2, the task was to look for a residuum of the glaucomatous elevation of intraocular pressure or to simulate it by means of provocative tests. The former was done by observing the diurnal variations in ocular tension either in the hospital or under conditions of normal unrestricted life. On patients with filtering operative scars of either the transconjunctival or the subconjunctival filtration type and routine morning tensions below 27 mm., diurnal variations of the ocular tension are difficult to demonstrate. These eyes are characterized by such a high degree of constancy of the tonometric reading that an occasional deviating reading is more apt to be due to a clinical experimental error than to an actually deviating tension.

Of the usual provocative tests, the drinking test of Marx appeared to be best suited for wide angle glaucomas (Kronfeld, McGarry and Smith [12]). In a study of the response of eyes with functioning operative filtering scars to the drinking test, J. S. Haas of this institution (in an article to be published) found fluctuations of the ocular tension of lesser magnitude than in normal eyes with the same initial tension. By these criteria, the functioning filtering scar in eyes with consistent pressure readings under 27 mm. of mercury seems to work as a safety valve of at least the same capacity as the normal trabecula-canal of Schlemm apparatus. This cannot be said for miotic-controlled eyes in which the drinking test frequently causes a rise as great as or greater than in a normal eye. Thus, in all miotic-normalized eyes in which there is further progression of the glaucomatous involvement of the optic nerve in the face of apparent normalization of tension, there is a definite possibility of insufficient normalization.

With regard to point 3 the eyes with stationary disease and those with further progressive disease in which the tension has been normalized surgically have been grouped (table 2) according to the prevailing tension range, which is either hypotony (below 15, range 1) low (range 1-2 with an average of 15) or normal (range 2 with variations between 18 and 27), and we found essentially the same relative frequencies. In other words, in the eyes with stationary disease and in those with further progressive disease, hypotony, intermediate and normal tension ranges occur with equal relative frequency. If the mechanism of further progression were due to a greater sensitivity to or to a lesser tolerance of ocular tension, one would expect the higher tension ranges (range 2) to occur more frequently in the eyes with progressive disease than in those with nonprogressive disease. This, however, was not the case. The equally frequent occurrence of the three normal tension ranges in the eyes with progressive and in those with nonprogressive disease speaks strongly for independence of the phenomenon of further progression of the prevailing tension. For the same reason, the prevailing tension range is unlikely to be an important factor in the mechanism of the further progression after normalization of tension. These observations fail to lend support to the concept of tension tolerance.

TABLE 2.—*Relative Frequency of the Three Normal Tension Ranges After Surgical Normalization in Stationary and Further Progressive Primary Glaucomas*

Course of Disease	Tension Range		
	1	1 to 2	2
Stationary	20%	15%	50%
Progressive	30%	22%	48%

The type of operation that produced the normalization did not seem to be an important factor either, since the three main types of operation, corneosclerectomy, iridencleisis and cyclodialysis, are represented in about the same frequency in the surgically normalized eyes with further progressive disease.

Other than the deep complete glaucomatous excavation, these progressively diseased eyes did not exhibit any ophthalmoscopic characteristics. They did not show vascular changes of the retinal or ciliary system with any greater frequency or severity than the eyes with nonprogressive disease.

A definite and consistent relationship was found between the course of the disease after normalization of tension and the visual acuity related to the glaucoma and prevailing at the time the normalization became effective. By visual acuity related to glaucoma, we mean the acuity affected or unaffected by the glaucomatous involvement of the optic nerve and not by any other manifestations of glaucoma (opacities of the media) or coincidental diseases. Arbitrarily we chose the corrected acuity of 20/50 as the borderline between good or slightly impaired vision on the one hand and markedly impaired vision on the other hand. In many of the eyes with a corrected visual acuity of less than 20/50, the field defect could be shown to involve the very center of the field, in the form of a wedge scotoma such as described by Evans.[13] Table 3 shows the relative incidence of good and poor visual acuity in the surgically normalized eyes with stationary and progressive wide angle glaucoma of stages 2 and 3. There was a definite majority of eyes with good visual acuities in the stationary and of eyes with poor visual acuities in the progressive group. It appears that an eye with good visual acuity after normalization has become effective has about twice as good a chance of retaining its visual functions as an eye with poor acuity. By the same token, the possibility of further progression after normalization is twice as great in eyes with poor acuity as in eyes with good acuity.

TABLE 3.—*Relationship Between Course of Disease and Visual Acuity*

Course of Disease After Normalization	Corrected Visual Acuity	
	≥20/50	<20/50
Stationary (100%)	73%	27%
Progressive (100%)	34%	66%

11. Gradle, H. S.: Tension Tolerance, Tr. Sect. Ophth., A. M. A., 1940, p. 17.

12. Kronfeld, P. C.; McGarry, H. I., and Smith, H. E.: Am. J. Ophth. **26**: 245, 1943.

13. Evans, J. N.: Am. J. Ophth. **27**: 1090, 1944.

V 13
1948

Heretofore, the term progression has been used to describe further loss of visual field irrespective of its location within the field. The relationship between visual acuity and incidence of further progression discussed in the foregoing suggests an exceptional position of the center of the visual field as far as progression of the glaucomatous involvement of the optic nerve is concerned. Further evidence along this line is obtained by determining the chances of survival, after normalization of tension, for specific portions of the visual field. Since further progression after normalization of tension takes the same course as "true" glaucoma, the paracentral portions of the upper nasal quadrant have the greatest and similar portions of the lower nasal quadrant next to the greatest specific susceptibilities to further progression. The incidence of further progression in eyes of stage 2 (graph 2) refers primarily to those paracentral nasal portions of the field. During the first and most of the second stage of glaucoma, the site of the glaucomatous loss of field keeps 5 to 10 degrees from the center of the field, so that the sparing of the latter is not remarkable.

When, during the late stages of glaucoma, the "battle" is brought right to the center of the field, the latter shows the remarkable power to survive which has been pointed out recently by E. V. L. Brown [14] and A. B. Reese.[9] Among 18 surgically normalized eyes of stage 3 with good acuity and field defects extending within 5 degrees of the center of the field, the central circular area of 2 to 3 degree radius survived in 15 and was damaged or lost in 3 eyes. The chances of survival of the center of the field may thus be said to be 83 per cent, a remarkably high percentage for eyes with such extensive field defects. These observations speak for a specific resistance of the very center of the visual field to the further progression of the glaucomatous involvement of the optic nerve after normalization of tension.

Analogous observations have been made under conditions of nonnormalization under which all portions of the visual field eventually fall victims to the disease with the exception only of the very center and, occasionally, the temporal crescent. Among 12 eyes of stage 3 in which the tension had not been normalized the center was preserved in 9 and lost or damaged in the remaining 3. That would mean that the chances of survival of the center of the field under conditions of nonnormalization are 75 per cent, not appreciably worse than under conditions of normalization. The number of eyes on which these observations were made is too small to establish quantitatively the degree of resistance of the center of the field under conditions of nonnormalization of tension: It seems highly probable, however, that the chances of survival of the center of the field are not much poorer under nonnormalization than under normalization of tension.

The objection may be raised that in eyes with very small central field islands further progression of the glaucomatous involvement of the optic nerve is difficult to recognize. Since all these eyes had good central acuities, we feel that the consistency of the perimetric findings obtained by the Bjerrum technic and the consistency of the central acuity measurements make it highly probable that no portion of the small central island became lost during the five year period. We therefore interpret the apparent survival of small central islands as a phenomenon of specific resistance of the corresponding portion of the optic nerve rather than as an immeasurably slow loss. This phenomenon of specific resistance, just as the phenomenon of further progression after normalization, has long been known to ophthalmologists.[9] We are unable to furnish any new clues to the possible mechanism of either phenomenon. Our estimates of the chances for survival of the various portions of the field (graph 6) in the three stages of the disease may prove helpful in the management of glaucomas.

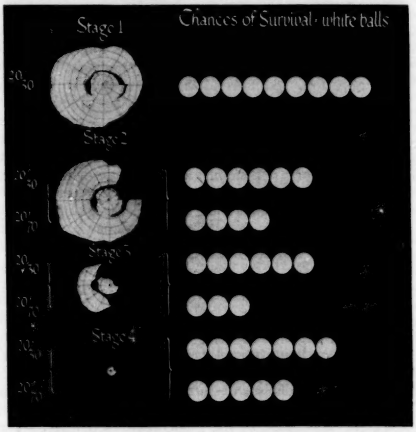

Fig. 6.—Chances of maintaining the visual status quo by normalization of tension (wide angle glaucomas).

In making the choice between surgical and conservative treatment, the physician will naturally have to consider the surgical risk, which depends on factors other than the type of eye operated and the type of operation performed, so that the figures calculated for this institution would not apply to any other institution or private practice. Thus, the surgical risk is a factor that every surgeon will have to estimate for himself.

The frequent occurrence of further eccentric field deterioration after normalization and of survival of central field islands despite nonnormalization may make the treatment of glaucoma appear more discouraging and complicated than it actually is. For while it is true that in wide angle glaucomas of stage 2 or 3 in a goodly percentage of surgically normalized eyes the disease progresses at about the same rate as in eyes in which the tension has not been normalized, we must constantly remind ourselves that in at least 50 per cent of the surgically normalized eyes the course of the disease has been radically improved over what it would have been had the tension not been normalized. It is true that in many of these cases the amount of peripheral field preserved by treatment is not enough to rehabilitate the patient economically. Still, the preservation of even such small rests of visual function must be considered as very worth while objectively as well as subjectively. Surveys such as this one bring out clearly the two main aims in the field of glaucoma: (1) the early recognition of wide angle glaucoma in the entire population and (2) the recognition of the factors that determine the outcome of filtering operations.

14. Brown, E. V. L.: Am. J. Ophth. **20**: 1250, 1937.

136
948

Other aspects of the course of glaucoma, such as the formation of opacities in the lens in relation to glaucoma or glaucoma operations, the vascular diseases of the retinal and ciliary system secondary to glaucoma, changes in the capacity of filtering scars, the phenomena of direct and indirect operative loss of visual function will be dealt with in a later publication.

SUMMARY

The purpose of this survey was to determine on a representative group of cases the course of so-called primary glaucoma under the influence of treatment intended to lower the ocular tension. Because of gross differences in the response to such treatment, it was found advisable to separate the wide angle from the narrow angle glaucomas. The treatment accomplished normalization, seminormalization or nonnormalization of ocular tension. Only eyes that remained in that respective state for at least five years were included in this study. The course of the disease, whether stationary or progressive after normalization of tension, showed a strong dependence on the stage of the disease present when the normalization became effective. In eyes with early stages of wide angle glaucoma the course of the disease was closely dependent on the prevailing tension range, normalization of tension resulting in a high percentage of arrest of the disease ("cures"). Seminormalization of tension at an average level around 28 mm. was sufficient to preserve the existing visual function in two thirds of eyes with early wide angle glaucoma. Later stages of glaucoma, as had been shown recently by A. B. Reese and J. W. Burke, showed a strong tendency toward further progression of the disease despite normalization of tension. The very center of the visual field seemed to exhibit a specific resistance to the glaucomatous disease. The chances of survival after normalization of tension were estimated for the respective stages of the disease. It is hoped that these estimates will prove of value to the ophthalmologist.

ABSTRACT OF DISCUSSION

DR. ALGERNON B. REESE, New York: Drs. Kronfeld and McGarry have divided their cases into deep and shallow angle glaucoma, and their analysis implicates the deep angle glaucoma as the greater offender in this phenomenon of progressive field changes in the presence of normal tension. Their figures are convincing. In wide angle glaucoma only 15 per cent of Group 1 cases progressed, and these were borderline group 2 cases, whereas 38 and 50 per cent respectively progressed in the cases of groups 2 and 3, and the progression was at about the same rate in eyes in which the tension was normalized and those in which the tension was not normalized. This is in contrast to narrow angle glaucoma, in which only 10 per cent showed progressive field changes with normalized tension irrespective of the stage of the disease. The screening of the cases from which they have made their deductions seems to me beyond criticism. The division of primary glaucoma into wide angle and shallow angle types is the soundest basic classification. The narrow angle glaucoma is due to some transitory functional factor back of the iris which pushes the root of the iris forward against the angle, while deep angle glaucoma is due to organic obstruction in the trabecular area. Histologic evidence indicates that this trabecular obstruction can be due to the secretion of a cuticular product of the endothelial cells lining the interstices of the trabecula (Reese, A. B.: Deep-Chamber Glaucoma Due to the Formation of a Cuticular Product in the Filtration Angle, *Am. J. Ophth* **27**:1193, 1944). The lamina vitrea is also a cuticular product, and it may be that deep angle glaucoma is characterized by an overproduction of the cuticular product of the eye. This might throw some light on the most interesting finding of Drs. Kronfeld and McGarry regarding the correlation in deep angle glaucoma between defective central vision and the progression of the field changes. They deduced that an eye with good visual acuity after normalization of tension has about twice as good a chance of retaining its visual function as has an eye with poor acuity. This relationship might be due to the fact that the same process which fills the interstices of the trabecula also causes a thickening of the lamina vitrea. This results in decrease in the permeability of the lamina vitrea sufficient to impair the nutrition of the retina, especially in the macular region where it is so dependent on the choroid for nourishment. The essayists have supported their main thesis with convincing facts. Almost every phase of the analysis so ably carried out by Drs. Kronfeld and McGarry points to the importance of early recognition and treatment of primary glaucoma. This objective is most difficult to achieve in the deep angle type which is the type in which it is most important.

DR. M. ELLIOTT RANDOLPH, Baltimore: Dr. Kronfeld states that the type of operation producing the normalization did not seem to be a factor. This observation is in partial agreement with the result of a series of glaucoma cases published a few years ago (1941) from the Glaucoma Clinic of the Wilmer Institute. This was a statistical study, essentially a comparison between the end results of trephine and iris inclusion operations, in a carefully selected group of cases. It was found in late cases which Dr. Kronfeld would consider stage 3 and late stage 2, whether wide or narrow angle, the results were identically poor with either operation. In stage 1 of wide angle glaucoma, the trephine operation was successful in 85.5 per cent, and the iris inclusion in 80 per cent, not a too striking difference. However —and this is the point which I would like to stress—in stage 1 of narrow angle glaucoma, the trephine operation was successful in but 62.5 per cent, whereas the iris inclusion was successful in 88.2 per cent. It has, therefore, been our custom, with rare exception, never to do a trephine operation except in wide angle glaucoma. The various theories as to why there should be further loss of field and vision in "tension-normalized" eyes are fascinating. However, it would seem that such an eye severely damaged by long standing pressure can scarcely be called "tension normalized" by our standards. It is obviously not fulfilling the definition of normal as being that degree of pressure which the tissues of the eye are able to withstand without impairment of function. From the paper which we have just heard, it would seem that in tension-normalized eyes we can now predict with better accuracy statistically just what cases will be controlled and what cases will progress. In discussing Burke's paper referred to by the essayists, the late Dr. Gifford suggested that further progression was somewhat rarer in those cases in which the tension was low. This is true in the group which we studied. However, other than desperately using drops of all types—"furmethide" (furfuryl trimethylammonium iodide), "doryl" (carbaminoyl choline) "mecholyl bromide" (acetyl-beta-methylcholine bromide) and neostigmine and DFP (di-isopropyl fluorophosphate)—we rarely do anything else if the tension hovers around 25 to 30. In spite of the fact that we have assurance that some of these patients do not eventually go blind, it would seem that further surgical treatment is indicated. This excellent paper is great credit not only to the authors (Dr. Kronfeld and Dr. McGarry) but also to what is obviously a highly efficient glaucoma clinic from which these cases originated.

Dr. LOUIS LEHRFELD, Philadelphia: Like most statistical studies, there are shortcomings. Some time ago I was a statistician. I had been computing the mortality among Italians. I found in one town that the mortality was 50 per cent. In looking up the records, I found there were only 2 Italians, and 1 died. So in dealing with small numbers, one makes great mistakes. Of course, Dr. Kronfeld has a large series of cases, but when he compares a small series of 52, half of which are normal eyes, the 26 gives a percentage number that is greater than the original figure. I, too, had experience in statistical compilations. In the year 1936 I published a report of a survey on glaucoma in Wills' Hospital over a period of ten years, 1926-1935, in which I reported 1,875 cases of glaucoma that were observed over a period of ten years. In that series it was found

V 136
1948

that 27 per cent of the primary glaucomas were of the congestive type (what I would like to call the wet types of glaucoma) and 73 per cent were noncongestive or dry. Of course there are some cases that are neither in the dry stage nor the wet stage; they are partially dry and partially wet. For statistical purposes, I like to call the acute and chronic congestive glaucoma the wet type and the wide angle or the chronic glaucoma the dry type. The point of interest in Dr Kronfeld's paper is the fact he mentions that cases of glaucoma are treated medically and surgically Too many of us have the impression —and the textbooks sometimes mention it—that glaucoma is a surgical disease whenever and wherever one sees it. Dr. Kronfeld did not make such mention in his statistics. I am firmly convinced that glaucoma is not a disease to be treated by surgery alone. Furthermore, when we use the term medical and surgical treatment, we should not feel for one moment that the term "medical" is a definite entity or that the term "surgery" is a definite entity or quantity. I am still a little uncertain what Dr. Kronfeld means when he speaks of normalizing glaucomatous eyes. I can conceive of a diabetic patient being normalized, but that patient is still diabetic. I can conceive of a patient having a general hypertension being normalized, and still that patient is a hypertensive patient. In glaucoma, patients having normal tension still have the causative factors which produced the glaucoma. I have come to the conclusion that we are all operating at the wrong place for glaucoma. We are operating the corneoscleral junction. We all know that that is where the obstruction occurs. It is my belief that the point of drainage should be further backward in the region of the pars planum of the ciliary, which I call the silent area of the eye.

DR. T. D. ALLEN, Chicago: We who have been associated more or less intimately with the work of the Glaucoma Clinic at the Illinois Eye and Ear Infirmary for the past several years have been increasingly interested in the statistics and analyses that Dr. Kronfeld and his associates in that clinic have given us. The continuous study has entailed an enormous amount of work not only in the examinations but also in the grouping of records, so that scientific conclusions will become available for teaching purposes. The authors are to be congratulated for the graphic manner in which these conclusions have been portrayed, and I hope you will not only see his exhibit, but read the paper carefully. Some of us probably have not related the prognostic value of the classification wide angle and narrow angle glaucoma. We have known for years that the earlier the treatment is started, the better the prognosis is. We frequently tell our own patients that it is easier to stop a bobsled on the top of the hill than part way down, but the fact that we have almost twice as good a prognosis in narrow angle glaucomas as in wide angle glaucomas, no matter what treatment is given, may be the stimulus that some young man in this audience needs to improve on our concepts of the disorder, and, consequently, its management. On the other hand, it is interesting to learn by these statistics that our conception that some "tension-normalized" eyes proceed on their way to blindness means that ocular hypertension is apparently not the only etiologic factor in the disorder, although it may be the most important. We know that a patient with an emotionally disturbed personality is more difficult to control. Can there be a relationship between the causes of the emotional instability and this unknown etiologic factor? One point in the paper which might be further emphasized is the sparing of the area of central fixation in many eyes the fields of which have otherwise been destroyed. We have so often heard it said, "Don't operate if the peripheral field is gone or you will surely destroy the central field." Of the authors' 18 cases of surgically "tension-normalized" eyes in stage 3 when first seen, 15 continued to have good central vision, and in only 3 did this field succumb. It will be interesting to learn what another five or ten years will do to these patients as compared to the 9 or 12 patients who have preserved the central field, although the tension was not normalized. Five years' close observation of a great number of patients is a tremendous task, but, after all, five years is not long to a patient in middle life if he has chronic simple glaucoma.

DR. PETER C. KRONFELD, Chicago: I am deeply indebted to the discussers for having shed so much more light on the material that we have presented here. Dr. Reese's theory that the obstruction of the trabeculum in the anterior portion of the eye may be paralleled by a similar degenerative process involving the lamina vitrea in the posterior segment is very interesting. I do not believe that Dr. McGarry and I are completely satisfied with the pure nerve fiber concept of visual defects in glaucoma. Especially since seeing the exhibit by Drs. Posner and Schlossman, we are more inclined to think in terms of a combined, nerve fiber and vascular concept of the field destruction in glaucoma. With regard to Dr. Randolph's comment, which I appreciate very much, we said little in our paper about the surgical means which were used to bring about the state of normalization. We did say, however, that the phenomenon of further progression after normalization occurred with more or less the same frequency after all three main types of surgical treatment, that is, corneoscleroctomy, iridencleisis or cyclodialysis. Therefore, we felt that the type of operation had nothing to do with the phenomenon of further progression. Since Dr. Randolph mentioned the glaucoma survey from the Wilmer Institute, I would like to say that our own observations also indicate that in the eyes with very narrow, very crowded angles, the operation which is generally called iridencleisis, definitely fares better than the operations which come under the general heading of corneosclerectomy. I believe all corneosclerectomies need more "elbow room" than the operations that we call iridencleises. In other words, in crowded quarters the iridencleisis has a better chance to succeed than any form of corneosclerectomy. I speak of corneosclerectomy as a general term for any form of excision of parts of the fibrous coat in the anterior segment of the eye, the trephine being just one form of corneosclerectomy. I appreciate Dr. Lehrfeld's remark. Perhaps we should have put the word normalized in quotes. In the paper we have clearly stated our criteria of normalization. We are well aware of the fact that in many respects our series was too small, and it is for that reason that in all our slides we showed the actual number of eyes that exhibited the particular phenomenon so as to prevent any conclusions based on too few cases. I thoroughly agree with Dr. Thomas Allen that the period of observation of ten years or fifteen years would throw more light on the problem than our period of five years. However, the phenomenon of further progression after normalization is very evident at the end of the first year.

HORMONAL TEST FOR FETAL DEATH IN DISTURBED PREGNANCY

BERNHARD ZONDEK, M.D.
FELIX SULMAN
and
RYVKA BLACK
Jerusalem Palestine

When a woman begins to bleed during the first months of pregnancy, great care must be exercised in order to save the pregnancy, particularly if the patient has been suffering from habitual abortion. It is often possible to tide such patients over the critical period after weeks of bed rest combined with hormone and other treatment, thereby saving the lives of children who would otherwise be lost. On the other hand, even when the same precautionary measures and methods of treatment are employed, we frequently encounter failures resulting in abortus after the patients have had to neglect their home responsibilities to no avail for weeks and to undergo a series of costly treatments. We have hitherto had no clinical method for establishing the important differential diagnosis whether pregnancy may or may not be maintained in any particular case. Can this be decided by means of a laboratory test?

Since the discovery of the pregnancy test we have been considering this question, basing our analysis on the premise that with the death of the fetus the first

From the Gynecologic-Obstetric Department of the Rothschild Hadassah University Hospital and the Hormone Research Laboratory

organ to die is the placenta, the cessation of the hormonal function of which must be demonstrable. Since gonadotropin is produced in great quantities during the earliest stages of development of the ovum, whereas estrogen first appears at a much later period (three to four months of pregnancy), it is clear that the demonstration of gonadotropin, and particularly of a drop in the production and excretion of this hormone, comes under consideration for our test. In cases of habitual abortion or threatened abortion the most important decision from a clinical point of view must be taken during the first months of pregnancy.

During recent years we have studied the hyperemia effect of gonadotropin on the ovary of the infantile rat [1] with the view of using this as a pregnancy test, and we have found that the cessation of placental function may be established with reasonable certainty by the titration of the patient's urine for the presence of the hyperemia factor (hyperemia titration test). In this way we have obtained a clinically useful test for determining whether a pregnancy with a disturbed clinical course may or may not still be saved. We believe that with the aid of this test curettage may be avoided and that pregnancy may thus be maintained in spite of bleeding in certain cases which would hitherto have been considered hopeless, and that, on the other hand, long drawn out and costly treatment may be avoided in cases in which the fetus is already dead.

The following are the biologic bases of the test, which is naturally founded on the hormone pregnancy test (Aschheim-Zondek test)[2]: (1) explosive flooding of the organism with choriogenic gonadotropin shortly after the implantation of the ovum; (2) demonstration of the excreted gonadotropin on the basis of specific ovarian changes in test animals, in particular hyperemia which leads to massive hemorrhage in the enlarged follicles (blood point, the anterior pituitary reaction II), and the formation of corpora lutea (anterior pituitary reaction III).

Zondek and Aschheim [1a, b] have shown that the implantation of anterior pituitary lobe or placenta or the injection of blood or urine from a pregnant woman into an infantile rodent elicits pronounced ovarian hyperemia and ultimately leads to the formation of blood points. The hyperemia effect differs in different species of rodents. In rabbits, for instance, it cannot be elicited at all; in the infantile mouse it is ambiguous, whereas in the rat the effect is clearcut. Hyperemia is the primary visible effect of the gonadotropic hormone and is demonstrable as early as two hours after the injection of chorionic gonadotropin.

The hyperemia effect of gonadotropin on the rat ovary and the use of this reaction for the diagnosis of pregnancy have been discussed in detail elsewhere.[1e] Eighteen to twenty-four hours after the injection of 2 to 4 cc. of pregnancy urine the hyperemia effect is well in evidence and is excellently suited for use as the basis of the diagnosis of pregnancy (with a margin of error of 1 per cent). The accuracy of the rapid hyperemia test is, therefore, not inferior to that of the original Aschheim-Zondek test carried out on the infantile mouse. In a recent study we showed [1f] the important role of a time factor in the production of hyperemia as a reaction to the choriogenic gonadotropin. A much larger quantity of gonadotropin (thirty times as much) must be given in order to elicit a positive hyperemia reaction within two hours than is needed to elicit such a reaction within ten hours after injection. The relation of the minimum effective dose to the time is shown by the figures in table 1.

TABLE 1.—*Relation of the Hyperemia Unit to the Time Elapsing Between the Injection of Gonadotropin Hormone and the Reading of the Response*

Time, hours	2	4	6	8	10	11	12	18	20	24
HU *	1	1	1	1	1	1	1	1	1	1
RU †	20	15	14	1	0.5	1	2	3 • 4		5
IU ‡	4	3	2.8	0.2	0.1	0.2	0.4	0.6	0.8	1

* HU (hyperemia unit) is the minimal quantity of gonadotropin yielding the hyperemia effect in the rat ovary.
† RU (estrus unit) is the minimal quantity of gonadotropin eliciting vaginal estrus in the rat. The RU was determined by parallel experiments.
‡ IU was computed from RU with the aid of our local calculation factor (1/5).

It follows that a given quantity of gonadotropin, which elicits a positive reaction after ten hours, may fail to do so after only two or six hours. It is understandable, therefore, that diagnosis of pregnancy on the basis of the hyperemia response was found to be 31 per cent erroneous in our Jerusalem rat strain at two hours, and 7.8 per cent erroneous at six hours but practically free from error at twenty-four hours after injection.[1e] The highest sensitivity is obtained at ten hours, but this sometimes represents a disadvantage rather than a merit, since false positive reactions may be encountered with this high sensitivity, and the dose of urine injected must be reduced from 2 to 4 cc. to 0.2 to 0.4 cc. In practice the eighteen to twenty-four hour test is recommended.

HYPEREMIA REACTIONS OF DIFFERENT STRAINS OF RATS

The possibility requires consideration that different strains of rats may differ from one another in their ovarian response to gonadotropin. The Jerusalem strain is well suited to use in hyperemia tests. One of us [3] studied the hyperemia reaction on a local strain of rats in Europe (Berlin) from 1933 to 1935, and found it difficult to diagnose pregnancy on the basis of the hyperemia reaction with that particular strain. In Jerusalem, on the other hand, such diagnosis of pregnancy presents no difficulty. Alexander Albert has informed us in a personal communication that the strain of rats employed in the Mayo Clinic is particularly sensitive to choriogenic gonadotropin, apparently much more so than the strain used by us in the studies discussed in this paper. An investigator wishing to carry out our test for fetal death must first test his strain of rats and must compare its hyperemia unit (HU) with its estrus-eliciting unit (RU) with regard to choriogenic gonadotropin, as shown in table 1.[4] It is possible that other authors will require smaller or

1. (*a*) Zondek, B.: Ztschr. f. Geburtsh. u. Gynäk. **90:** 378, 1926. (*b*) Aschheim, S., and Zondek, B.: Klin. Wchnschr. **7:** 1404, 1928; **7:** 1453, 1928. (*c*) Zondek, B., and Aschheim, S.: Arch. f. Gynak. **130:** 27, 1927. (*d*) Zondek, B.: Die Hormone des Ovariums und des Hypophysenvoederlappens, ed. 1, Berlin, Julius Springer, 1931, p. 131; ed. 2, 1935, p. 202. (*e*) Zondek, B.; Sulman, F., and Black, R.: Hyperemia Effect of Gonadotropins on Ovary and Its Use in Rapid Pregnancy Test, J. A. M. A. **128:** 939 (July 28) 1945. (*f*) Zondek, B., and Sulman, F.: J. Clin. Endocrinol, 1947, to be published.

2. Footnote 1, *a*, *b* and *c*.

3. Zondek, B.: Die Hormone des Ovariums und der Hypophysenvorderlappens, ed. 2, Berlin, Julius Springer, 1935, p. 563.

4. It is easily possible to bring the hyperemia unit (HU) into quantitative relation to the estrus unit (FSH); e. g., eleven hours after the injection 1 hyperemia unit corresponds to 1 estrus unit.

greater quantities of urine than those employed by us (4 cc. to 2 cc.), depending on whether their rat strains are more or less sensitive to gonadotropin than is our strain.

TECHNIC OF READING THE HYPEREMIA REACTION

The importance of the time factor has already been stressed. Here it is sufficient to state that the hyperemia test becomes sensitive enough to be relied on only eight hours after the injection. Injections must be given subcutaneously, never intraperitoneally. In opening the rats internal bleeding must carefully be avoided, as this may sometimes render reaction uncertain or even negative. Rats should be killed with ether, chloroform or illuminating gas. The color of the positive ovaries should be red and should resemble that of the kidney, liver or spleen. A control reading must be performed some minutes after the first reading of the reaction. Hyperemia reaction of only a single ovary is always open to suspicion as an unspecific reaction and should not necessarily be interpreted as a positive reaction.

NORMAL PREGNANCY

In the diagnosis of normal pregnancy the following technic is employed with our strain of rats. We use 2 infantile rats, 3 to 4 weeks old, weighing 25 to 30 Gm. each. The first receives two injections of 2 cc. of urine at an interval of one hour; the second receives two injections of 1 cc. of urine at an interval of one hour; 250 and 500 hyperemia units (HU) of gonadotropin can be detected in this way. The reaction is read as positive for pregnancy if all the ovaries of the injected animals present a typical hyperemia; i. e., a red color similar in tone to that of kidney or spleen. In normal pregnancy the urine contains at least 500 hyperemia units per liter. If only 250 hyperemia units are detected, it is doubtful whether the fetus is alive, and a repetition of the test should be undertaken.

DISTURBED PREGNANCY

In cases of missed abortion, deficient development of the uterus constitutes an important diagnostic aid. But error may here arise from the fact that the last menstruation date is not known with certainty or is wrongly reported.

In threatened or habitual abortion accompanied by bleeding, the fetus may nevertheless still be alive and treatment may be necessary. In such cases diagnosis is extremely difficult. On the other hand, prolonged treatment of the patient is superfluous if the fetus has died. The diagnosis of extrauterine pregnancy will be discussed later.

Can the pregnancy reaction throw light on the course of a disturbed pregnancy? In our experience the use of the hyperemia titration test makes it possible to give an answer to this question in a high percentage of cases. The early months of disturbed pregnancy are generally characterized by the cessation of the placental production of gonadotropin and by an accompanying decrease in the urine titer of this hormone.

There are, however, cases in which, although the fetus has died, the excretion of placental gonadotropin (and estrogens) may still be sufficiently high to simulate the persistence of a living fetus (Zondek, 1947 [5]). In such cases the reaction will appear positive even though the fetus has actually died. Such cases will be out of our control, but this type of diagnostic error is less important than an apparent negative result in a case when the fetus is still alive. Repetition of gonadotropin tests in disturbed pregnancy should be made a routine procedure at weekly intervals. Significant decreases in the hormone levels (e. g., down to one tenth of the normal levels) will then give important diagnostic and prognostic hints.

HYPEREMIA TITRATION TEST

A significant finding in disturbed pregnancy is obtained by the use of the titration technic for the purposes of diagnosis (hyperemia titration test) as proposed by Zondek [1d] and applied by Rakoff [6] and others.

TABLE 2.—*Evaluation of the Hyperemia Titration Tests in Rats in Cases of Disturbed Pregnancy*

Rat 1 *	Rat 2 †	Rat 3 ‡	Rat 4 §	Diagnosis
+	+	+	+	Fetus living ‖
+	+	+	—	Fetus in danger; repeat reaction
+	+	—	—	Little hope; repeat reaction
+	—	—	—	Fetus dead

* In rat 1 4 cc. was injected, 250 hyperemia units per liter.
† In rat 2 2 cc. was injected, 500 hyperemia units per liter.
‡ In rat 3 1 cc. was injected, 1,000 hyperemia units per liter.
§ In rat 4 0.2 cc. was injected, 5,000 hyperemia units per liter.
‖ Between the fortieth and the eightieth day of pregnancy this result does not prove that the fetus is alive.

It has been pointed out that urine during the course of normal pregnancy, and particularly during the first five months of pregnancy, contains at least 500 hyperemia units per liter. If less hormone is found the conclusion may be drawn that the normal course of pregnancy is disturbed and that placental function is on the wane. We determine the hormone content of the urine within the range of 250 to 5,000 hyperemia units. Four infantile rats are employed (table 2): Rat 1 receives two injections of 2 cc. of urine at intervals of one hour; i. e., a total of 4 cc., equivalent to 250 hyperemia units per liter. Rat 2 receives two injections of 1 cc. of urine, a total of 2 cc., equivalent to 500 hyperemia units per liter. Rat 3 receives two injections of 0.5 cc., a total of 1 cc. of urine, equivalent to 1,000 hyperemia units per liter. Rat 4 receives two injections of 0.1 cc., or a total of 0.2 cc. of urine, equivalent to 5,000 hyperemia units per liter.

If all four rats show a positive reaction the fetus is alive. If rat 4 alone shows a negative reaction, the urine contains less than 5,000 hyperemia units and the life of the fetus is in danger. In such a case the test should be repeated a week later in order to ascertain whether there has been a further decrease in the titer. If such a decrease is observed, it is certain that the fetus has died, whereas if the titer has risen, the fetus is still alive. If rat 3 shows a negative reaction, the urine contains less than 1,000 hyperemia units per liter and there is little likelihood that the fetus is still alive. In this case, also, the test should be repeated in order to avoid error. If rat 2 shows a negative reaction, the urine contains less than 500 hyperemia units per liter and it is certain that the fetus is dead. We emphasize that in all these cases the test should be repeated, since **the decision to terminate pregnancy operatively by curettage is a heavy responsibility and should not be reached on the basis of a single hormone test.**

HORMONE TITER DURING THE PEAK PERIOD

Early in their investigations, Aschheim and Zondek [1b, c] showed that an enormous increase in the production of gonadotropin and in its excretion in the urine occurs a few days after the implantation of the ovum.

5. Zondek, B.: Lancet **1**: 178, 1947.

6. Rakoff, A. E.: Am. J. Obst. & Gynec. **38**: 371, 1939; Pennsylvania M. J. **43**: 669, 1940.

Other authors [7] later showed that a second pronounced peak in horomone production and excretion occurs during the interval of forty to eighty days after nidation. During this peak period the titer rises from 10,000 to 20,000 to 100,000 to 200,000 or more hyperemia units per liter, and the use of the hormonal test for the diagnosis of disturbed pregnancy requires some caution during this time, since a value which indicates a living fetus if obtained outside the peak period may indicate the death of the fetus if observed during the peak period. For example, a 9 per cent decrease in hormone production in the peak period leads to a drop of 200,000 to 20,000 hyperemia units. Outside the peak period the latter value would be interpreted as evidence of a living fetus, whereas within the peak period it actually proves that the fetus has died. Values below 5,000 hyperemia units within the peak period are certain evidence that the fetus is dead. We arrive, therefore, at the following proviso in connection with the scheme set forth in table 2: If a positive reaction is obtained in the peak interval with all 4 rats, and 5,000 hyperemia units are, therefore, present per liter of urine, it is still uncertain whether the fetus is alive. If rat 4 gives a negative reaction (less than 5,000 hyperemia units per liter of urine), and certainly if rat 3 is negative in reaction (less than 1,000 hyperemia units per liter of urine), the test is even more reliable during the peak period than it is before or thereafter. The finding of less than 5,000 or 1,000 hyperemia units per liter of urine during the peak period indicates an enormous decrease in hormone production, and hence it points to fetal death with more certainty than if the same value be obtained outside the peak period.

EXTRAUTERINE PREGNANCY

In disturbed extrauterine pregnancy the anamnesis is not often dependable. An enlarged uterus and the presence of a tumor beside or beneath the uterus raises the suspicion of extrauterine pregnancy. If the extrauterine pregnancy is still developing, the hyperemia Aschheim-Zondek test of course elicits a positive reaction (reactions of rats 1 to 4 positive). If rupture of the tube or a tubal abortion has occurred and the fetus is dead, the placenta is only slightly functional and produces only follicle-stimulating hormone. The pregnancy reaction in such a case is negative, since luteinizing hormone is absent from the urine. Furthermore, the reaction to the hyperemia test, which depends on the combined action of follicle-stimulating hormone and luteinizing hormone, is also negative. For two weeks, however, follicle-stimulating hormone continues to be demonstrable in the urine and elicits an estrus reaction. It is, therefore, useful in the diagnosis of extrauterine pregnancy to combine the rapid hyperemia test with the original four day Aschheim-Zondek test for prolan A (FSH) in mice or, preferably, in rats. A positive follicle-stimulating hormone reaction (cornification in the vaginal smear) is then important, since it may determine whether a laparotomy should be made. We wish to emphasize, however, that in such cases the demonstration of a hematoma beside or behind the uterus is much less ambiguous as a basis for diagnosis than is the hormonal reaction. A definite diagnosis can be established in a matter of minutes by puncture of the Douglas pouch and by the aspiration of coagulated blood into the syringe. The hormonal test is necessary, therefore, only in cases in which diagnosis is difficult.

FETAL DEATH IN THE LAST TRIMESTER OF PREGNANCY

It is not definitely known whether the excretion of chorionic gonadotropin (prolan) in the urine during the last trimester of pregnancy always remains constant. Earlier reports have shown that there are cases in which excretion of gonadotropin diminishes considerably toward the end of pregnancy. Basing his analysis on his experience in Berlin, one of us (B. Z.) described the value of the gonadotropin test (Aschheim-Zondek test) in 1935 as follows [8]:

> Only the cessation of the placental function can be established, and fetal death may be indirectly concluded from it. Hormonal tests have disadvantage that negative reactions are not reliable in the last months of pregnancy, when prolan excretion may be considerably lower and more inconstant than in the earliest weeks. In the last months of pregnancy the prolan content of the urine may sometimes be lower than 330 M.U. (660 R.U.) per liter, so that the mouse exhibits an apparently negative pregnancy reaction.

Similar views were also adopted by Runge and Clausnitzer [8] and Fraenkel.[9]

In Palestine, where we have used the infantile rat for the Aschheim-Zondek test, we have not encountered cases of this kind, since excretion of follicle-stimulating hormone ante partum always ranged between 10,000 to 20,000 estrus-eliciting units per liter. When this value decreases considerably (to one tenth of the normal value) it indicates death of the fetus (at least in Palestine). Practice has shown that in the last trimester a negative hyperemia reaction demonstrates the death of the fetus, whereas a positive reaction may occur in spite of fetal death because the placenta is still functioning. Whether the applicability of the hyperemia titration test in diagnosis of fetal death is restricted to certain rat strains must be determined by control examinations in different countries.

The problem of diagnosis of fetal death becomes less important during the last months of pregnancy, when the auscultation of fetal heart beats becomes a reliable diagnostic aid. Still, there remain cases in which the fetal heart beats are not clearly audible. The hyperemia titration test and the determination of estrogen in the blood [10] remain of importance in such cases.

CASE MATERIAL

The observations made on the use of the hormonal test in the diagnosis of disturbed pregnancy are based on our experience in a series of 500 cases which we followed up clinically. We examined 160 cases of extrauterine pregnancy (125 ruptured and 35 undisturbed), 140 cases of threatened abortion (105 miscarriages, 35 brought to term), 200 cases of missed abortion (40 diagnosable by the first examination, 110 after two examinations and 50 after three examinations). Our results in this group warrant the con-

7. Laquer, F.; Döttl, K., and Friedrich, H., in Medizin und Chemie, Leverkusen, Bayer-Meister-Lucius, 1934, vol. 2, p. 117. Browne, J. S. L., and Venning, E. M.: Lancet **2**: 1507, 1936. Evans, H. M.; Kohls, C. I., and Wonder, D. H.: Gonadotropic Hormone in Blood and Urine of Early Pregnancy, J. A. M. A. **108**: 287 (Jan. 23) 1937.

8. Runge, H. G., and Clausnitzer, C.: Zentralbl. f. Gynäk. **56**: 2450, 1932.

9. Fraenkel, L.: Monatschr. f. Geburtsh. **88**: 263, 1931; **89**: 131, 1931.

10. Determination of estrogen in the blood (more than 200 mouse units per liter of serum), as recommended by Spielmann, Goldberger and Frank (Spielmann, F.; Goldberger, M. A., and Frank, R. T.: Hormone Diagnosis of Viability of Pregnancy, J. A. M. A. **101**: 266 [July 22] 1933), is another important aid in diagnosis for fetal death which should never be omitted. It has, however, the following shortcomings: (a) The estrogen titer of the blood begins to increase only after the third month of pregnancy; hence the test is not dependable before the fourth month of pregnancy. (b) The estrogen titer of the blood may remain high after primary fetal death with functional placenta. Cases of this kind have been described by Zondek.[3] Our experience with the Frank test has shown that less than 200 mouse units of estrogen per liter of serum indicate fetal death.

V 13
1948

clusion that the hyperemia titration test is a valuable diagnostic aid in the determination of disturbed pregnancy.

SUMMARY

The diagnosis of disturbed pregnancy on the basis of a hyperemia titration test employing gonadotropin excreted in the urine is described. The titration in rats of our strain is carried out on four rats, which received 4, 2, 1 and 0.2 cc. of urine, respectively, corresponding to titers of 250, 500, 1,000 and 5,000 hyperemia units per liter. The fact that different strains of rats differ from one another as to their response to choriogenic gonadotropin makes it necessary to use a strain with a constant reaction and to test it for its sensitivity to chorionic gonadotropin. The proportion between the hyperemia reaction and the estrus unit (prolan A or follicle-stimulating hormone) must be established (table 1), and the quantities of urine to be injected must be determined accordingly. According to whether the strain of rats is more or less sensitive than our strain, greater or smaller amounts of urine should be used.

If all 4 rats show a positive reaction, pregnancy is normal. If rats 1 to 3 react positively and rat 4 reacts negatively, the life of the fetus is in danger. If only rats 1 and 2 react positively, there is little hope for the life of the fetus. If only rat 1 reacts positively, the fetus is dead.

The decision to treat a pregnancy operatively by curettage should never be based on a single hormonal test. In every case in which a negative reaction is observed a repetition of the test should be undertaken.

In the period from forty to eighty days after the implantation of the ovum, during which there is an enormously increased hormone production (peak period), the fetus may be dead even though all 4 rats react positively. If all 4 rats show a positive reaction to urine taken in the peak period, an unambiguous diagnosis on the basis of the titration test cannot be made. However, a result is considered even more significant during the peak period than before or after it, if rat 4 alone or together with any or all of rats 1 to 3 shows a negative reaction, since this indicates a relatively greater decrease of gonadotropin during the peak period than before or after it and therefore points with additional certainty to the death of the fetus.

During the last months of pregnancy the titer of gonadotropin is not as constant as before, so that individual fluctuations which lead to a considerable drop in the titer of gonadotropin may occur. In the case of a negative result of the Aschheim-Zondek test we therefore recommend the addition of a blood estrone determination before fetal death is diagnosed. Hormonal diagnosis during the final months of pregnancy is of importance only in cases in which fetal heart beats are not distinguishable.

The Murmur Of Heart Block.—A systolic murmur in the mitral area in heart block is only found when the heart is greatly enlarged. It is a rough murmur and it may be loud. Posture is without much effect on its intensity although it is sometimes better heard when the subject inclines to the left. A thrill is never present unless there is mitral or aortic valvular disease as well—Evans: *British Heart Journal*, October, 1947.

SURGERY OF THE SEVENTH NERVE

THOMAS G. TICKLE, M.D.
New York

Paralysis of the facial nerve, so calamitous a disfigurement in a person's life, is also an incidence of economic, social and psychologic importance, since one loses "the language of facial expression," as Duel so aptly put it. Since the face is "the mirror of the soul," many surgeons have attempted to come to the rescue by surgical procedures. To the late Sir Charles Ballance, of London, must be accredited the first recorded case of successfully operating for the relief of facial paralysis. In 1895, he anastomosed the spinal accessory nerve with the facial. (Drobnick, in 1879, performed the same operation but did not record the case, although some of his confreres wrote about it.) Brilliant as were the results of the operations, the so-called emotional response was lacking; there was atrophy of the muscles supplied by the nerve together with disfiguring associated movements.

INTRATEMPORAL FACIAL OPERATIONS

Intratemporal facial operations were devised and carried out by Ney,[1] Martin,[2] Bunnell.[3] As a matter of fact, in 1930, Bunnell using a piece of the sural nerve from the leg bridged in a gap in the facial nerve, thus restoring function to the facial muscles. There is no doubt that the great advance in treatment of facial nerve paralysis is due to the research carried on during 1929 and 1930 by Ballance and Duel. In 1932, after having worked together on animals—and not knowing of Bunnell's experiment—they advocated a direct line repair as the operation of choice in facial paralysis due to injury of the facial nerve. This operation was first performed by them in 1931 on a baby—8½ months old—who had undergone a simple mastoidectomy in which most of the facial nerve had been removed at the operation. A piece of nerve taken from the external respiratory nerve of Bell was used to bridge the dehiscence in the facial nerve.

This nerve was used for the next 2 cases, but its use was abandoned because of the difficulty encountered in locating it. The intercostal nerve was then chosen and used in the repair of the facial nerve until it occurred to Duel that, if the piece of nerve were degenerated, the time of recovery might be shortened and the end results might be better, so the anterior femoral cutaneous nerve was utilized for this purpose.

The idea of degenerating the nerve was that when a nerve is cut and allowed to remain in situ for fourteen to twenty-one days, it undergoes what is known as wallerian degeneration, thus creating a set of empty tubules. Thus the cable was prepared for the neurons to grow down through these tubules to the distal end of the cut nerve. From 1932 to 1936 the procedure was to locate the anterior femoral cutaneous nerve, sever it and wrap a piece of gold leaf around it so that it easily could be found at the time of the next operation, then allow it to remain in situ for fourteen to twenty-one

Read before the Section on Laryngology, Otology and Rhinology at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., June 13, 1947.

1. Ney, K. W.: Facial Paralysis and the Surgical Repair of the Facial Nerve, Laryngoscope **32**: 327 (May) 1922.
2. Martin, R. C.: Intratemporal Suture of the Facial Nerve, Arch. Otolaryng. **13**: 259 (Feb.) 1931.
3. Bunnell, S.: Surgical Repair of the Facial Nerve, Arch. Otolaryng. **25**: 235 (March) 1937.

days. This piece of nerve was then used to bridge the dehiscence in the facial nerve. Heteroplastic grafts were also used as graft material in 3 cases.

Inasmuch as it required a waiting period of two or three weeks and a second operation in these cases, blood types of patients were determined on their admission to the hospital, and those with the same type were considered suitable for this operation. One patient who had the nerve severed for three weeks was operated upon on the same day as 2 other patients admitted to the hospital three weeks later, whose blood type was the same. Sufficient nerve was taken from the degenerated nerve of this patient to bridge in the gaps found in all 3 cases. The irony of this experiment was that to the 2 patients whose degenerated nerve the donor had supplied, voluntary motion was restored; while for the poor donor who had willingly given of her degenerated nerve, facial paralysis remained. One might ask: "Is it more blessed to give than to receive?"

The time of recovery was no quicker and the end results were no better than when a fresh nerve was used. The reason for this I did not know until I met Mr. Bentley in London in 1936; he, when working in the laboratory of the Royal College of Surgeons, had experimented on cats, using both fresh and degenerated grafts of the same lengths. After voluntary motion was restored, the cats were killed and the grafts examined histologically. It was found that few neurons had grown through the empty tubules and that most of them had passed along the sheath. This explains why degenerated grafts produced no better results than fresh ones.

TYPES OF CASES

The cases suitable for operation are those in which paralysis is due to an injury or to the result of a toxic infection. The latter group includes some cases of paralysis of the facial nerve in connection with acute otitis media, acute mastoiditis, chronic mastoiditis, labyrinthitis and so-called Bell's or refrigeration palsy.

To determine which cases are suitable for operation, I rely not only on the patient's reaction to faradic stimulation, but on my experience gained over a period of sixteen years in the observation of several hundred cases.

A patient with paralysis of the facial nerve in which response to faradic stimulation has been lost—and the angle of whose mouth in repose is drooping—in my opinion should have the advantage of surgical treatment. Usually the angle of the mouth on the paralyzed side is lower than on the nonparalyzed side in a complete paralysis of the facial nerve, but when the angles are about even it signifies that there is a slender connection between the nerve segments above and below the site of injury; in other words, there is enough connection left to supply tonus to the oral muscle. I have seen a number of patients in whom the response to faradic stimulation was lost regain their voluntary motion in a few months' time. These are the cases in which it is most difficult to know just what procedure to advise the patient to follow. The history of the paralysis is of great importance: When did it first appear? Was it partial or complete when first noticed? Was the onset after a simple or a radical mastoidectomy? The answers to these questions determine in large measure the advice to be given to the patient.

Complete facial paralysis immediately after either a simple or a radical mastoidectomy nearly always means that the nerve has been badly damaged or severed, while that coming on several hours or days after the operation means that the nerve had been injured either by slightly tearing the sheath and injuring a few neurons, by pushing a spicule of bone into the nerve or by a hematoma in the nerve sheath which creates an edema of the nerve, the swelling of which shuts off the impulses going from the brain to the periphery.

In those cases in which paralysis appears immediately after a simple or a radical mastoidectomy, and in which response to faradic stimulation is lost within seventy-two hours, the nerve should be uncovered and inspected. (At this point, may I emphasize the importance of using some sort of magnifying loupe or magnifying glasses when uncovering and inspecting a nerve. I did not do this myself until a couple of years ago, and I am now sure that I have often injured a nerve more than was necessary when uncovering it, and I have, as well, missed some of the finer details that originally were responsible for some of the cases of paralysis.)

In a series of cases in which paralysis followed a simple mastoidectomy, I found it often due to the fact that the operator had gone too low in trying to locate the antrum and that, failing in this, he had made a new antrum just below the horizontal semicircular canal, thus cutting the facial nerve. In most of the other cases the nerve was injured when the operator was cureting the retrofacial cells, when he was probing the antrum too vigorously, or when, on enlarging it, he had attempted to curet some granulations from the floor. In only 3 of the cases did I find the nerve to have been injured outside of the mastoid foramen.

In cases in which the paralysis followed a radical mastoidectomy, the nerve was most often injured on the floor of the antrum, probably because of the thinness of the bone covering the nerve as it makes the bend from the horizontal semicircular canal across the middle ear. In some of the cases it was injured at the apex of the facial ridge as a result of shaving down the bone too far or in removing granulations in this area, because in many of the cases there was a dehiscence in the fallopian canal. One should curet granulations in close proximity to the facial nerve with the greatest of caution, always bearing in mind the possibility that the exposed nerve may be lying under these selfsame granulations. In 1 case in which I recently operated, the operator had mistaken the canal of the tensor tympani muscle for the facial canal and had cut the nerve just below the geniculate ganglion.

Preoperative paralysis is more frequent in chronic cases than in cases of acute suppurative otitis media. One explanation for this is that most of the cases are the result of a toxic infection, while those occurring from a chronic suppurative otitis media as a rule are due to an involvement of the nerve by an osteitic process. The ratio of 3 to 1 in favor of chronic suppurative otitis media—as cited by Kettel of Copenhagen [4]—is possibly too low, especially since the number of cases of acute suppurative otitis media has been greatly reduced in the past few years by the use of the sulfonamide drugs and penicillin.

TREATMENT

Preoperative paralysis of the facial nerve in cases of acute otitis media is of itself no indication for operation, any more than are cases of so-called Bell's palsy, because the paralysis is usually due to edema or toxic

4. Kettel, K.: Facial Palsy of Otitic Origin, Arch. Otolaryng. 37: 303 (March) 1943.

V 13
1948

neuritis; however, if there is a quick loss in faradic response, and any indication of a mastoid involvement, then operation is clearly indicated. A simple mastoidectomy should be performed without a decompression of the facial nerve. Should the paralysis still persist after a period of two months following the simple mastoidectomy, then one should consider decompression of the facial nerve.

In cases of chronic suppurative otitis media the situation is quite different, for there the paralysis is most often due to a propagating osteitis. I concur with others that a radical mastoidectomy is indicated. So far, decompression of the nerve in all these cases is a debated question, and I am sure that I cannot supply the answer, but I am certain that if there are loss in faradic response, a fistula in the facial canal, and any signs of an osteitis, one is justified in uncovering the nerve. If there is a faradic response and no fistula is seen, then one may be justified in waiting for about six weeks to see whether the paralysis shows signs of clearing up; if at the end of this time voluntary motion is not being restored, a decompression should be done. It is true that I have seen a number of cases in which the response to faradic stimulation was lost and in which **the patient did not consent to operation; and yet the facial paralysis cleared up.**

In the cases in which a decompression is done, I think that the nerve should be uncovered from the stylomastoid foramen up to the geniculate ganglion and the sheath slit over the entire exposed nerve. Prognosis in cases of paralysis of the facial nerve occurring in the course of chronic suppurative otitis media is far more serious than in cases of acute suppurative otitis media and especially so if the paralysis is treated conservatively.

136
48

TYPES OF OPERATION

The types of operation that I will discuss in this paper are those used in cases in which the nerve has been injured anywhere from the geniculate ganglion to the face: decompression; end to end anastomosis; nerve grafting. If on uncovering and inspecting the nerve one finds a slight injury to the sheath and some of the neurons, a hematoma or a spicule of bone driven into the nerve (of course, remove the spicule of bone!) all that is necessary is to slit the sheath and close the wound; if a dehiscence is found, then one must choose between doing a nerve graft or an end to end anastomosis: i. e., rerouting the nerve if possible. I prefer the nerve graft for two reasons: (1) my end results after a nerve graft have been just as satisfactory as when I did an end to end anastomosis; (2) in rerouting the nerve it is nearly impossible to get a dry ear because few of the granulations can be cleaned out of the middle ear without injuring the nerve.

The type of nerve used for the graft is of no consequence: It is the size of the nerve that is important because, if too large a nerve is used, the end results are apt to be less satisfactory. From my experience, I am not sure that using several small strands—or, in other words, what is known as a cable-graft—is not superior to using one nerve in a graft. I have used this type of graft in several cases, and nearly all have been satisfactory.

In cases in which a small strand of nerve is left, do not remove it, but slit the sheath above and below the injury and insert one or more strands. Do not use sutures in grafts or end to end anastomosis operations, unless in soft tissue, for their use tends to make more scar tissue and this possibly may be the cause of an unsatisfactory result. Glue to fasten the ends of the nerve together is unnecessary because there will be some bleeding at the time of the graft, so the patient furnishes his own "glue" which is just as good as any that is artificial, and possibly better.

An infected wound is no contraindication to doing a nerve graft or a decompression operation, for, in my experience, the results have been just as satisfactory as when there was no infection. If one waited for all infection to clear up, many of the patients with paralysis of the facial nerve never would have the benefit of surgery, especially those with paralysis following a radical **mastoidectomy because in some of the cases suppuration never stops.**

I wish to cite the case of Mrs. S., aged 56, who consulted me two weeks after she underwent a radical mastoidectomy that was immediately followed by a complete paralysis of the facial nerve. On opening the old cavity I found considerable granulation and some necrotic bone that had not been cleaned out at the first operation. The nerve was missing from just below the geniculate ganglion to below the horizontal semicircular canal. It required a graft of 16 mm. to bridge the dehiscence in the facial nerve, and the wound continued to suppurate; in spite of this voluntary motion was first noticed in four months' time. The suppuration continued together with the formation of **cholesteatoma**—in fact it became so bad that I told the patient she should consent to a second operation to which she did not agree. She continued treatment for two years until the cavity dried up, and so it has remained for the past five years. This patient has obtained one of the best results in any of my operative cases because she is 1 of 3 who can move the frontalis equally well on both sides.

CASES NOT SUITABLE FOR A DIRECT LINE REPAIR

When there is no response to galvanic stimulation, showing that the muscles either have atrophied or become fibrosed, I think that it is useless to operate. This muscle atrophying may cover a period of years. Sullivan [5] did report a case of fourteen years' standing in which cure was effected by a nerve graft, but in my experience it has been only some form of plastic operation that has obtained for the patient more symmetry when his face is in repose.

"BELL'S PALSY"

Assuming that 85 to 90 per cent of patients with "Bell's palsy" recovered spontaneously, there are 10 to 15 per cent that do not recover or recover only partially. These are the patients that should have the benefit of surgical treatment. The patients that are less apt to recover are those that suffer pain, especially over the temporal, zygomatic or postauricular region. In my opinion, all patients that lose response to faradic stimulation, and show no improvement in six weeks' time, should have a decompression operation; i. e., the nerve should be uncovered and the sheath slit from the stylomastoid foramen to the horizontal semicircular canal. It is not necessary to clean out all of the mastoid cells, but only enough to expose the descending portion of the facial canal.

In the cases that have gone on for several months or years, my attempts at decompressing the nerve have been discouraging; in cases in which I did a decom-

5. Sullivan, J. A.: A Modification of Ballance-Duel Technique in the Treatment of Facial Paralysis, Tr. Am. Acad. Ophth. 41: 482, 1936.

pression early after the onset of the paralysis, the results have been most gratifying.

FIRST SIGNS OF RETURNING FUNCTION

The patient will report that his friends and relatives say his "face is now looking better"; i. e., the mouth in repose is straighter: this can be attributed to the return of muscle tonus. The patient will often report that he feels a "creepy-crawling" sensation on the side of his face. When the patient is asked to open and close the eyes forcibly, a slight movement at the angle of the mouth will be observed. These movements will become stronger in a few weeks' time and one will be able to observe movement at the corner of the mouth without the patient's closing his eyes. The return of function will always be gradual.

POSTOPERATIVE RESULTS

The function of the frontalis muscle practically never returns, the explanation for which is supposed to be that the fewer contractile elements present in the frontalis muscle degenerate before innervation has been reestablished.[6]

The patient will not always be able to elevate the upper lip on the paralyzed as well as on the good side. There will always be a slight associated movement due to the splitting of the neurons, especially if the patient is asked to wink, and often there will be a slight twitch. This twitch, as well as the slight associated movement, often will be seen years afterward in the patients with "Bell's palsy" who have recovered spontaneously.

ABSTRACT OF DISCUSSION

DR. FRANK D. LATHROP, Boston: Dr. Tickle is to be commended for his lucid discussion of a subject that should be of primary interest to the otologic surgeon but which is gradually being assimilated by the neurosurgeons. This is regrettable in view of the fact that the well trained otologic surgeon is best prepared to restore the anatomic continuity of the facial nerve and to eradicate the pathologic process present in the middle or inner ear with which such palsies are commonly associated. It should not be expected that the physiologic function of the facial nerve will be returned to normal by the employment of any method of treating facial paralysis. Decompression, end to end suture and nerve grafting of the facial nerve, when possible, restore the physiologic function of the nerve to a variable degree in the majority of instances and permit the greatest possible return of emotional response. It is this aspect of the treatment of facial palsy that is of greatest concern to the patient. The maximum degree of emotional recovery can be attained only by the reestablishment of the original neurogenic pathway from the cerebral cortex to the facial musculature. As Dr. Tickle has mentioned, the degree of emotional recovery obtained following spinofacial and hypoglossofacial anastomoses is usually inferior to that attained with a direct line of repair and, consequently, these methods of treating facial palsy should be reserved for those cases of facial paralysis in which it is impossible to restore the anatomic continuity of the facial nerve. With respect to the importance of the faradic response in arriving at a decision as to whether the facial nerve should be explored, I am in agreement with Dr. Tickle. It should be understood, however, that failure of the nerve-muscle complex to respond to cutaneous faradic stimulation does not necessarily indicate that anatomic disruption of the facial nerve has occurred, but is indicative only of a physiologic interruption even though the nerve may be anatomically intact. Consequently, when the facial nerve is anatomically intact and exhibits a negative faradic response, spontaneous recovery from the palsy is not precluded. Experience with a number of battle casualties presenting facial paralyses revealed that in many instances the nerve-muscle complex failed to respond to faradic stimulation when tested in the usual manner but gave a positive response when stimulated with the patient under general anesthesia. This would seem to indicate that failure to obtain a positive response when the test is performed in the usual manner may be owing to inability of the patient to withstand the pain of a faradic stimulus of sufficient intensity to obtain a positive response without benefit of a general anesthetic. All patients tested in this manner whose course I have been able to follow had recovery subsequently from their facial palsy.

DR. J. A. SULLIVAN, Toronto, Canada: What is important in the use of a graft is this singular fact, which can be most vividly seen under the dissecting microscope, that it is easier to mobilize and get accurate coaptation of nerve ends with a degenerated graft than it is with a fresh one, and that is my particular reason for preferring the use of a degenerated graft. The length of the graft is important. The entrance of neurofibrils through the proximal end of the graft is, as a rule, not impeded, but what does occur is the formation of endoneural scar at the distal end of a graft; with a long graft more time is afforded for this pathologic formation to occur. In a short graft this condition does not pertain. I agree with Dr. Tickle on the point that he utilizes for the determination of when and when not to operate. To be absolutely sure of the faradic response, it is necessary to expose the nerve directly and observe the results. Involvement of the seventh nerve may have been due to a recurrent acute reaction superimposed on the chronic process producing the paralysis. In regard to rerouting of the nerve, I most emphatically agree. I do not believe that the nerve should be rerouted. I prefer the use of a single nerve as a graft to that of the cable graft. I have done considerable work with the use of plasma, and I consider it a great adjunct and advise that it be used routinely in the approximation of graft to nerve. One only needs to observe this under the dissecting microscope to become firmly convinced of its practical value. As power cannot be restored to muscles which have undergone fibrous atrophy, absence of galvanic response is a contraindication to any operative treatment directed to the nerve supply. What is perhaps less well appreciated is the possibility that fibrosis may involve parts of the small muscle bundles of the facial musculature, interfering with that synergic contraction within the larger functional muscle groups that gives rise to the infinite variety of expressive movements. This fibrosis may also be responsible for the nonreturn of movement to the frontalis muscle after the graft operation; i. e., in cases in which the muscle is necessarily denervated for a relatively long time, in contrast to the early return of movement in this muscle in cases in which recovery occurs without surgical intervention.

DR. THOMAS G. TICKLE, New York: I agree with Dr. Lathrop that surgical treatment of the facial nerve should be in the hands of the otologist. As he mentioned, the surgeons do not know a mastoid as well as an otologist. Dr. Sullivan thinks a degenerated nerve better than a fresh one, but my results have not been any better. Maybe it is because I have not been using the dissecting microscope, but in my approximation, I think it has been just as good in a fresh graft as a degenerative graft. In monkeys, my colleagues and I used to cut the nerve and test them out every hour. We found that the response would be lost in forty-eight to seventy-two hours after the nerve had been cut. We never found one case in which the period was longer than seventy-two hours.

6. Martin, R. C.: Surgical Repair of the Facial Nerve, Arch. Otolaryng. 23: 458 (April) 1936.

Medical Officers Certified By Boards.—During the last few months forty-two officers of the Regular Army Medical Corps have been certified by American Boards as a result of the Army's training program. A total of fourteen specialties are represented in this number, internal medicine leading with a total of seventeen certifications.

V 13
1948

ANTERIOR OR PERINEAL PILONIDAL CYSTS

TOM E. SMITH, M.D.
Associate Professor of Proctology, Southwestern Medical College
Dallas, Texas

When the term "pilonidal cyst" is used one immediately thinks of the pathologic hair-bearing cysts seen in the vicinity of the midline coccygeal region. The reporting of thousands of these cases in the literature, plus time, has made this anatomic location conventional, and it is difficult to think of a pilonidal cyst occurring in any other site.

In 1943 and 1944 4 cases of pilonidal cyst were seen which were located in the perineum, several inches anterior to the anal verge. These cases were interesting diagnostic problems since they were all sent to the Ano-Rectal Surgical Section of Brooke General Hospital with a diagnosis of "anterior anal fistula." Three patients had what appeared to be external fistulous orifices in the left anterolateral perianal quadrant, and 1 had an orifice located in the right anterolateral perianal quadrant. The orifices were situated from 1 to 3 inches (2.5 to 7.6 cm.) from the midline.

At first it would seem easy to differentiate these perineal cysts from anal fistulas by simple palpation, but actually the results of palpation are as confusing as they are enlightening. Palpation in these cases failed to reveal an indurated cord leading into the anal canal. Occasionally anal fistulas with slow abscess resolution present the same picture. The same thing is also seen in fistulas that can be felt going toward the anal verge but which dip deep and pass between the outer and middle lamellae of the external anal sphincter muscle. Therefore palpation was not a conclusive diagnostic criterion in these cases.

At this stage some will say that use of the silver probe would make the decision, but probing gave little information since a probe passed into an unresolved fistulous abscess will pass in many directions just as it does when it is inserted into a cystic cavity. Here a word regarding sympathy for the patient is in order. Probing near the anus in the unanesthetized patient is a painful and sweat-provoking procedure and is one which should be condemned. It certainly puts a strain on the relationship between patient and doctor and is apt to make the patient feel that he is in the hands of an unthoughtful surgeon. If probing is considered essential toward diagnosis by the surgeon, then saddle block anesthesia should be used. This will relieve the patient of pain and tend to lessen false interpretations by the surgeon.

The bacteriologic study of the exudate from all fistulas was a routine on the surgical service at Brooke General Hospital, and this measure was found to be of importance in the differential diagnosis. Lieut. Col. Max Levine, Chief of the Bacteriology Section, advised applying a layer of tincture of iodine over the orifice area and allowing it to dry. Then with sterile technic the exudate was expressed and studied. Coliform bacilli were not found in any of these cases of perineal pilonidal cysts, while they were universally found in the exudate from the external orifices of anal fistulas.

Methylene blue was instilled into these patients after saddle block anesthesia. The anesthesia was used to prevent the stimulation to contraction of the powerful external anal sphincter muscle by the injection of methylene blue under pressure. In no case did the methylene blue appear at the dentate line in the anal canal. The blue solution was then washed out of the cavity with hydrogen peroxide. This was followed by injection of a chloriodized peanut oil preparation and the taking of flat plate roentgenograms. The roentgenograms showed a pooling in the perineum with no tract leading toward the anal canal.

The conclusive proof that these perineal cysts were of the pilonidal type was found at operation. Each cyst was strutted with methylene blue–hydrogen peroxide solution and excised en bloc. After the cysts were opened, hair was found in the cavity, and microscopic study later revealed the same structure as that seen in coccygeal pilonidal cysts.

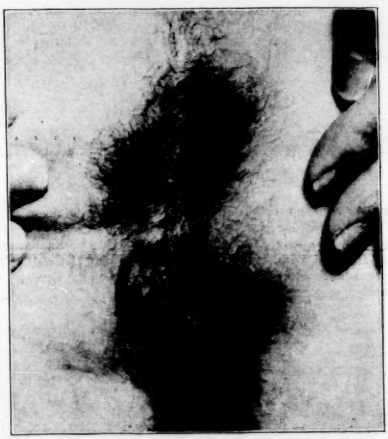

Fig. 1 (case 1).—Anterior pilonidal cyst. Limits of induration are shown by the dark circle. The cystic orifice is seen near the center of the circle. Note that all of the cyst is located on the left of the perineal midline.

These anterior or perineal pilonidal cysts should not be confused with postrectal or presacral dermoids, since they are different entities entirely. The postrectal dermoids are occasionally misdiagnosed as a conventional pilonidal cyst because in some cases their external vents come to the surface in the region of the midline coccygeal zone. A pilonidal cystectomy is done which is then followed by recurrence, since the true cyst was undetected. Postrectal dermoids should be thought of in cases of repeated recurrence following coccygeal pilonidal cystectomies. This was elucidated by Dr. Frank H. Lahey in 1934.[1]

SYNOPSES OF CASES

CASE 1.—The patient, a private aged 35, was seen in April 1943. The external orifice was 2½ cm. to the left of the anterior midline approximately 6 cm. from the anal verge (fig. 1). The

Read before the Section on Gastro-Enterology and Proctology at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., June 12, 1947.

1. Lahey, F. H., and Eckerson, E. B.: Presacral Dermoids, Am. J. Surg. 23:30. 1934.

136
948

previously described procedures were done to differentiate from an anterior anal fistula. On April 6, with the patient under caudal transsacral anesthesia, the cyst was removed with electrosurgical technic and the perineal wound was left open. Light

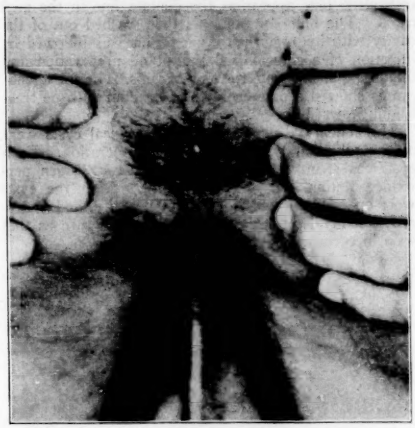

Fig. 2 (case 3).—Anterior perineal pilonidal cyst.

packing with an emulsion of sulfathiazole was done. The wound healed uneventfully in thirty-five days. The microscopic pathologic report stated "The section has apparently been removed with cautery and the edges are charred. The tissue submitted is hair bearing and is partially covered by stratified squamous epithelium."

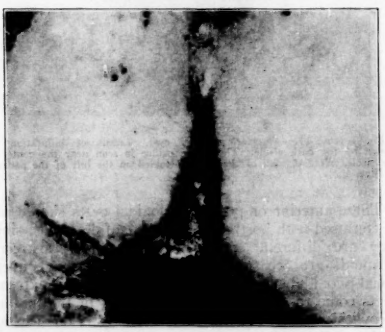

Fig. 3 (case 3). Showing interrupted cotton suture skin closure (closed method)

Case 2.—The patient, a first lieutenant aged 29, was seen in April 1943. He had both coccygeal and perineal pilonidal cysts. A coccygeal pilonidal cystectomy was done on March 31, 1943, by the "closed method" devised by Dr. F. C. Shute, who was on active duty at Brooke General Hospital at that time. On April 30 the perineal pilonidal cystectomy was performed by the closed technic with cotton sutures. The perineal wound healed per primum. Sutures were removed on the seventh postoperative day. The microscopic pathologic report of the perineal pilonidal cyst stated "Multiple sections are taken to show various portions of a sinus tract. Throughout the major portion of its extent its wall is composed of dense fibrous tissue infiltrated by numerous lymphocytes and mononuclear cells. Near the center there is recent suppuration, associated with the formation of foreign body giant cells. At one or two points hair follicles are noted in the wall." A later report stated: "Multiple additional sections have been examined and very strongly suggest that an epidermal component is present in the cyst."

Case 3.—The patient, a private aged 32, was examined in July 1944. Figure 2 shows what appears to be an anterior anal fistulous orifice. Perineal pilonidal cystectomy was done on July 13 with the patient under caudal transsacral anesthesia, the sharp dissection technic being used. Closure was done with chromic 1 and plain 0 surgical gut for deep suture and 70 cotton for the skin. Figure 3 shows the wound on the fifth postoperative day. The wound healed by primary intention. Figure 4 shows the excised cyst after opening for inspection. The microscopic pathologic report follows: "Multiple sections were cut from the tissue submitted and show a marked nonencapsulated zone of vascular granulation. In some parts this is apparently cystic. In one of the sections an occasional tangential fragment of hair is present."

Case 4.—The patient, a sergeant aged 25, presented himself in October 1944 with a diagnosis of an anterior anal fistula. However, the induration and other findings led to a preoperative diagnosis of anterior perineal pilonidal cyst. Block dissection was done on October 6; the closed technic was used, with interrupted sutures of plain 00 surgical gut for deep closure and interrupted dermal sutures for the skin. The sutures were removed on the seventh postoperative day. The gross pathologic

Fig. 4 (case 3).—Specimen after being opened.

report was: "The specimen consists of a previously sectioned segment of skin with subcutaneous tissue that measures 3 by 0.7 by 0.7 cm. The skin surface is rough and slightly pink stained. Sectioned surfaces show an opened smooth membrane-lined area that measures approximately 12 mm. in length, from which project several long hairs." The pathologist commented: "The findings are compatible with a cyst partially lined with stratified squamous epithelium and partially by granulation tissue. The etiology of the process is not determined."

Since hair was removed by me from each of these perineal cysts, it can be emphasized that these were hair-bearing or pilonidal cysts. Since hair is not always found in coccygeal or posterior pilonidal cysts, having either been washed out by suppurative exudate or been pulled out by the patient or examining doctors, it is possible in the future that anterior pilonidal cysts will be seen which are void of hair.

As none of these cysts had their openings in the midline and all had the major part of the cystic tissue on either side of the midline it seems difficult to explain them etiologically as being faulty midline ectodermal invagination, as suggested by Bookman in 1924.[2] The neurogenic theory of formation of pilonidal cysts as

2. Bookman, M. R., Treatment of Sacro-Coccygeal Sinus (Pilonidal Sinus), New York State J. Med. 24: 204, 1924.

V 13
1948

propounded by Tourneaux and Herrmann [3] in 1887 is dealt a death blow when pilonidal cysts are found on the anterior part of the perineum, for no embryologic vestige of the neural canal is normally located there. The soundest etiologic explanation of coccygeal or posterior pilonidal cyst has been given by Fox,[4] and his investigations and deductions could also account for the finding of pilonidal cysts in the perineum. Fox stated "that pilonidal sinus is a derivative of skin ectoderm and not neurogenic or enteric in origin, that the structures forming the sinuses are derived by a process of ectodermal invagination from the skin surface at the time and in cells destined to form skin appendages (hair and glands) during the third and fourth months of embryonic life and that its mode of origin and the analogy drawn between this structure and the special scent gland in the sacrococcygeal region of birds and amniotes suggest the probability that the sinus represents a vestigial skin appendage developing at puberty —hence the age distribution of pilonidal sinus."

SUMMARY AND CONCLUSIONS

Since no report could be found of the location of pilonidal cysts in the anterior part of the perineum, 4 such cases were reported. The differential diagnostic points between anterior anal fistulas and anterior perineal pilonidal cysts were outlined. It was emphasized that anterior perineal pilonidal cysts were not to be confused with presacral dermoids (postrectal dermoids). Synopses of the cases involved were presented, with pathologic observations emphasized. Etiologic explanations were discussed.

136
948

SURGERY OF THE LOWER BOWEL

Preparation and After-Care of the Patient

HARRY E. BACON, M.D.
Philadelphia
and
ROBERT J. ROWE, M.D.
Dallas, Texas

The preparation and postoperative management of the patient undergoing surgery of the lower bowel has assumed a position of increasing importance to both the surgeon and the gastroenterologist during the past decade. The results of the clinical application of certain factors responsible for this metamorphosis have been well demonstrated in our series of patients with lesions of the colon and rectum, including over 600 with malignant growths in this region, and are summarized in table 1.

It is our opinion that this reduction in mortality following surgical procedures of this magnitude has been due largely to the advances that have been made in the preparation and after-care of these patients rather than to refinements in surgical technic. In this presentation it is possible to discuss only a few of the most important advances, which in our opinion have been chiefly responsible for these results.

3. Cited by Bacon, H. E.: Anus, Rectum, and Sigmoid Colon, Philadelphia, J. B. Lippincott Company, 1938, p. 747.

4. Fox, S. L.: The Origin of Pilonidal Sinus, with an Analysis of Its Comparative Anatomy and Histogenesis, Surg. Gynec. & Obst. **60**: 127, 1935.

Professor and Head of the Department of Proctology, Temple University Hospital and School of Medicine (Dr. Bacon) and Clinical Instructor in Proctology, Southwestern Medical College (Dr. Rowe).

Read before the Section on Gastro-Enterology and Proctology at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N. J. June 12, 1947.

PREOPERATIVE EVALUATION AND PREPARATION

In order properly to prepare the average patient for major surgery of the colon and rectum, it is preferable that he be hospitalized for several days prior to the operative procedure. During this time, an effort is made to evaluate the patient as a surgical risk and, so far as it is possible, place him in optimal nutritional, fluid, electrolyte, nitrogenous, and vitamin balance while the bowel is being prepared for surgical treatment. Efforts are made to evaluate hepatic and renal function.

TABLE 1.—*Deaths in Series of Patients with Lesions of Colon and Rectum*

	Cases	Deaths	
		Number	Percentage
Mortality to January 1946			
Resections of all types excluding A. P. P. S.*	115	11	9.5
A. P. P. S.*	231	15	6.4
Total	346	26	7.5
Mortality from January 1946 to May 12, 1947			
Resections of all types excluding A. P. P. S.*	26	0	0
A. P. P. S.*	116	0	0
Total	142	0	0
Total Mortality to May 12, 1947			
Resections of all types excluding A. P. P. S.*	141	11	7.8
A. P. P. S.*	347	15	4.3
Total	488	26	5.3

* Abdominoperineal proctosigmoidectomy.

The presence of hepatic dysfunction was noted by one group [1] in 25 per cent of patients with gastrointestinal cancer. On a small scale similar studies were carried out by our department, but confirmation of such definite evidence of dysfunction was not demonstrable. It was interesting to note that contrary to previous reports,[2]

TABLE 2.—*Preoperative Evaluation*

Routine Studies	Elective Studies
1. Complete blood count, hemoglobin and hematocrit	1. Blood sugar
2. Urinalysis (daily specific gravity with 2,500-3,000 cc. intake)	2. Hepatic function (a) Sulfobromophthalein sodium (b) Cephalin flocculation (c) Thymol turbidity (d) Prothrombin time (e) Alkaline serum phosphatase
3. Serum protein with albumin-globulin ratio	3. In obstruction, ulcerative colitis or dehydrated patients (a) CO_2 content (or blood p_H) (b) Blood chlorides (c) Blood sodium and potassium
4. Blood urea	4. Barium sulfate enema (when no obstruction is present) to determine the presence of other lesions
5. Weight, Kg.	
6. Daily fluid intake and output	
7. Medical and urologic consultation (including electrocardiogram and cystometry)	
8. Blood type and Rh factor	
9. Daily determination of blood pressure	
10. Photofluorogram of chest	

the alkaline serum phosphatase reaction was normal in 10 patients with massive metastases to the liver. Occasionally definite evidence of hepatic dysfunction has been demonstrated by the sulfobromophthalein sodium or cephalin flocculation tests. If there is evidence of hepatic damage operation is delayed until an attempt has been made to remedy the condition.

Anemia and hypoproteinemia, when present, are corrected immediately with whole blood, plasma and

1. Abels, J. C.; Rebers, P. E.; Pack, G. E., and Rhoads, C. P.: Metabolic Studies in Patients with Cancer of the Gastrointestinal Tract, Ann. Surg. **118**: 366, 1943.

2. Bullard, R. W. R.: Alkaline Phosphatase and Metastatic Liver Disease, Surgery **19**: 379-382 (March) 1946.

high protein intakes so as to provide an erythrocyte count of 4,500,000 with a concomitant hemoglobin of 80 to 90 per cent, hematocrit readings of 40 or above, and normal serum protein values. A minimum of 1,000 cc. of blood is made available for each prospective bowel resection. Although the average blood loss from abdominoperineal resection is only 450 to 500[3] cc., it has been our experience that at least 1,000 cc. of blood should be given during most abdominoperineal resections. This prevents shock and has enabled us to maintain a positive nitrogen balance with greater ease postoperatively.

In impending obstruction, or as an adjunct to primary resection, the mercury-weighted Miller-Abbott tube has proved eminently useful. However, if definite obstruction is present proximal enterostomy is advisable. In this group of patients it is imperative to establish fluid and electrolyte balance before surgical treatment is instituted.

A fluid intake of 2,500 to 3,500 cc. is maintained daily and renal function is tested by checking the specific gravity. If at least one specimen is not obtained with a specific gravity of 1.020 tests of renal function are initiated.

TABLE 3.—*Diet*

	Amounts in Grams			
	Carbohydrates	Protein	Fat	Caloric Value
Nonresidue diet	300	70	100	2,000
Carbohydrate protein mixture 1* derived from milk, 40 Gm. four times daily	50	80	0	520
Carbohydrate protein mixture 2† derived from milk, 120 cc. three times daily	57	39	3	420
Total	407	189	103	2,940

3 multivitamin capsules daily.‡ U. S. P. dosage or Upjohn "unicaps"
500-1,000 mg. ascorbic acid daily
100,000 units of vitamin A daily

* "Delcos granules" supplied by Sharpe & Dohme, Inc. Each hundred grams contains whole protein 50 Gm. and carbohydrate 30 Gm.
† "Protenum," supplied by Mead Johnson and Company.
‡ "Unicaps," supplied by The Upjohn Company. Each capsule contains nicotinamide, 20 mg.; vitamin A, 5,000 U. S. P. units; vitamin D, 500 U. S. P. units; ascorbic acid, 37.5 mg.; thiamine hydrochloride, 2.5 mg.; riboflavin, 2.5 mg.; pyridoxine hydrochloride, 0.5 mg., and calcium pantothenate, 5 mg.

PREPARATION OF BOWEL

Careful preparation of the bowel prior to surgical treatment with antibacterial agents and proper diet without purgation have undoubtedly been a significant factor in lowering the mortality following resection of the colon and rectum. The presence of avitaminosis and malnutrition—particularly hypoproteinemia—in patients with malignant growths of the gastrointestinal tract has been demonstrated repeatedly.

It is essential, therefore, to provide a well balanced, high protein, high caloric, high vitamin diet which yields no residue but contains adequate minerals and vitamins. Table 3 contains a diet which has served this purpose adequately.

Rectal irrigations are frequently necessary. For this purpose a solution is used containing 6 Gm. of phthalylsulfathiazole and 10 Gm. of sodium bicarbonate.

It is unnecessary to discuss in detail the use of the sulfonamide compounds. Phthalylsulfathiazole is our preference routinely, given in doses of 0.1 Gm. per kilogram of body weight daily. In some instances, when a moderate degree of obstruction is present, it has been proved advisable to use succinylsulfathiazole, since it possesses a laxative effect. Mention has been made that phthalylsulfathiazole decreases the bacterial

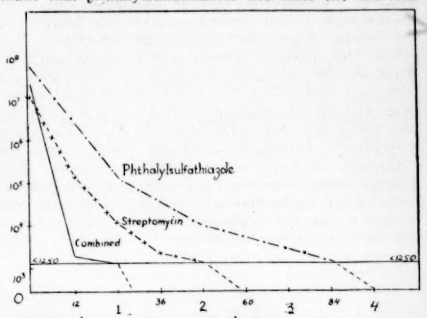

Chart 1.—Average coliform counts. The dosage of phthalylsulfathiazole was 0.1 Gm. per kilogram of body weight daily; that of streptomycin, 2 Gm. daily.

count in fecal material to the point that synthesis of vitamin K is interfered with and increases hemorrhage during and after the operation. Such has not been our experience, but vitamin K is administered preoperatively and also postoperatively for twenty-four hours.

In regard to the use of agents for lowering the bacterial flora of the colon, it might be interesting to relate that our department, in conjunction with Professor Earl Spaulding, head of the department of bacteriology, and Miss Dorothy Madajewski, has been investigating the efficacy of oral administration of streptomycin.

The effectiveness of phthalylsulfathiazole, streptomycin, and a combination of the two in reducing the coliform organisms in feces is shown in chart 1.

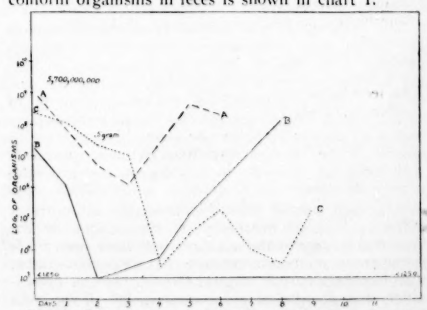

Chart 2.—Reversion curves. *A*, reversion of anaerobic gram-negative bacillus; total bacterial count, combined therapy. *B*, reversion of Aerobacter aerogenes following combined therapy. *C*, Reversion following 0.5 Gm. of streptomycin.

All patients in this study had cancer of the colon or rectum. Results have not been absolutely uniform with any of the agents. In 1 patient of a series of 12, the count remained moderately high (12,500 organisms) after phthalylsulfathiazole had been used for ten days. One patient out of 10 failed to respond to streptomycin after five days' therapy. In the combined group, our study is incomplete and more detailed results will be published later. However, 2 patients

3. Coller, F. A., and Crook, C. E.: Blood Loss in Surgical Operations, J. A. M. A. **120**: 1 (Sept. 2) 1944. Pack, G. E.; Oppenheim, A.; Abels, J. C., and Rhoads, C. P.: Estimation and Significance of Blood Loss During Gastrointestinal Surgery, Am. J. Surg. **119**: 871, 1944.

of 9 did not respond in the usual manner. In both instances the count was less than 1,250 within forty-eight hours, but in 1 patient it fluctuated between 60,000 and 1,250 for eight or nine days before remaining below 1,250; in the other patient the count returned to more than 100,000,000 (chart 2, Patient B). A pure culture of a very resistant Aerobacter aerogenes was isolated, and later proved to be definitely pathogenic. From the studies it appears that combining streptomycin and phthalylsulfathiazole for preoperative preparation of the bowel has advantages over the use of either of the substances alone. This is true only with regard to the coliform bacteria. Other studies as well as recent investigation of our own with regard to total bacterial counts tend to disprove the theory that the coliform count is a reliable index to the colon bacterial flora. In fact further study may reveal that administration of the sulfonamide compounds or antibiotics may be harmful, although this is not our opinion at present. Reversion occurred in 2 patients when streptomycin was administered in daily doses of 0.5 Gm.

Chart 2 demonstrates the reversion (or resistance) that may develop after the use of combined therapy. This occurred after prolonged use of the drugs, and although our studies are not complete at present it would appear that combined use of these substances preoperatively should be limited to forty-eight to seventy-two hours.

POSTOPERATIVE MANAGEMENT

Regardless of the manner in which the patient has been prepared or the type of operative procedure performed, competent and alert postoperative care is necessary to maintain low mortality rates following resection of the lower bowel.

NUTRITION

In recent years nutrition of the surgical patient has attained a position of paramount importance. Intensive research in this field has resulted in the monumental discovery of protein hydrolysates which could be administered parenterally. Similar advances have been made in parenteral vitamin therapy in the use of plasma and blood, and our knowledge of water and electrolyte balance has been extended. These new advances have enabled the surgeon to eliminate the period of acute starvation following abdominal operations as well as to feed patients parenterally for long periods of time when necessary.

FLUID BALANCE

In estimating fluid requirements it is necessary to consider the average daily intake, the loss of fluids from the body—the estimable loss from the kidneys, gastrointestinal tract and Wangensteen suction, as well as the insensible loss from the skin and the lungs.[4]

In our experience the urinary output and clinical evaluation of the patient have been the most valuable indices to the status of the body water balance. In conjunction with this the erythrocyte count, hemoglobin, hematocrit, serum protein, carbon dioxide content, serum chlorides, urinary chlorides and specific gravity and p_H of the urine are necessary determinations for rational fluid replacement. All fluid losses from suctions, ileostomies, fistulas, etc., must be computed and replacement of similar electrolytic substances instituted.[5]

Attention should be called to the danger of salt intoxication,[6] since it has been demonstrated that patients do not tolerate large amounts of salt during the early postoperative period.

In the average postoperative bowel resection with gastric suction, 2,500 to 3,000 cc. of fluid containing 150 Gm. of carbohydrate and 9 Gm. of salt will maintain fluid and electrolyte balance with a urinary output of 1,000 cc. of 1.015 specific gravity.

PROTEIN NUTRITION

Proteins are the most important component of food, being essential for growth and repair of injury to the body.[7] The frequency with which hypoproteinemia occurs in patients with malignant growths of the gastrointestinal tract has been demonstrated repeatedly. Several[8] groups have called attention to the important part that protein metabolism, particularly hypoproteinemia, plays in wound healing, predisposition to shock, postoperative edema in wounds and surrounding suture lines, increased susceptibility to infection, anesthesia and hepatic dysfunction. It is therefore essential that an attempt be made preoperatively to increase protein reserves, and postoperatively to maintain a positive nitrogen balance. In our patients this is done with plasma, whole blood, and 60 to 120 Gm. of protein hydrolysate daily. Table 4 reveals the average regimen that is followed in patients who have undergone abdominoperinal resection.

TABLE 4.—*Regimen for Average Patient on First and Second Postoperative Day Following an Abdominoperinal Proctosigmoidectomy with Gastroduodenal Suction*

First day:	
1,000 cc.	5% dextrose in 0.9 per cent NaCl solution
2,000 cc.	5% dextrose and 5-6 per cent protein hydrolysate in water, or 0.2 per cent NaCl
3,000 cc.	Total intake, with 150 Gm. carbohydrate: 60-120 Gm. protein: 9-11 Gm. NaCl
Second day:	
1,000 cc.	5% dextrose in 0.9 per cent NaCl solution
250 cc.	Sixth-molar solution sodium lactate
250 cc.	Blood plasma and/or
1,500 cc.	5% dextrose in water with 60 to 90 Gm. of protein hydrolysate
3,250 cc.	Total intake, with 125 Gm. carbohydrate: 60-120 Gm. protein; 9 Gm. NaCl

USE OF ANTIBIOTICS

Penicillin is employed routinely after bowel resections in doses of 30,000 units every three hours. If contamination is present sulfones are used intravenously until they are tolerated by mouth.

4. Maddock, W. G., and Coller, F. A.: Water Balance in Surgery, J. A. M. A. **108:** 1 (Jan. 2) 1937.

5. Moyer, C. A.: Fluid and Electrolyte Balance, Surg., Gynec. & Obst. **84:** 586, 1947.

6. Coller, F. A.; Campbell, K. M.; Vaughn, H. H.; Job, V., and Moyer, C. A.: Postoperative Salt Intolerance, Ann. Surg. **119:** 533, 1944.

7. Youmans, J. B.: Nutritional Deficiencies, Philadelphia, J. B. Lippincott Company 1941, p. 233.

8. Jones, C. M., and Eaton, F. B.: Postoperative Nutritional Edema, Arch. Surg. **27:**159 (July) 1933. Hartzell, J.; Winfield, J. M., and Irwin, J. L.: Plasma Vitamin C and Serum Protein Levels in Wound Disruption, J. A. M. A. **116:** 669 (Feb. 22) 1941. Binkley, G. E.; Abels, J. C., and Rhoads, C. P.: The Treatment of Postoperative Hypoproteinemia in Patients with Cancer of the Colon and Rectum, Ann. Surg. **118:** 748, 1943. Abels, Rebers, Pack and Rhoads,[1] Meyer, K. A., and Kozoll, D. D.: Protein Deficiency in Surgical Patients, Surg., Gynec. & Obst. **78:** 181, 1944. Bacon, H. E.; Todhunter, W. D.; Gass, O. D., and Wolfe, F. D.: The Preoperative and Postoperative Treatment of Cancer of the Rectum and Pelvic Colon, J. Internat. Coll. Surg. **8:** 20, 1945. Lund, C. C., and Levenson, B. M.: Protein in Surgery, J. A. M. A. **128:** 95 (May 12) 1945. Elman, R., and Lischer, C.: The Occurrence and Correction of Hypoproteinemia in Surgical Patients, Surg. Gynec. & Obst. **76:** 503, 1943. Mulholland, J. H.; Co Tui; Wright, A. M.; Vince, V. G., and Shafiroff, B.: Protein Metabolism and Bedsores, Ann. Surg. **118:** 1015, 1943. Thompson, W. D.; Raydin, I. S., and Frank, I. L.: Effect of Hypoproteinemia on Wound Disruption, Arch. Surg. **36:** 500 (March) 1938. Rhoads, J. E.; Fleigelman, M. T., and Panzer, L. M.: Mechanism of Delayed Wound Healing in Presence of Hypoproteinemia, J. A. M. A. **118:** 21 (Jan. 3) 1942. Jones, C. M.: Protein Deficiency, New England J. Med. **215:** 1132, 1936.

In the presence of infection the type of causative organism and its susceptibility to the antibiotics and sulfonamide compounds is determined before therapy is instituted.

THROMBOEMBOLISM

Since the introduction of the newer antibiotics and sulfonamide compounds, mortality from infection is almost an entity of the past. Hence the attention of surgeons has been drawn to other less frequent causes of death. Thus an unprecedented interest has arisen in thromboembolic disease. Although not at first apparent, the justification for this is demonstrated in our series. Five deaths due to pulmonary emboli occurred in 439 operations on the bowels.

For a period of over two years a rigid prophylactic regimen has been instituted. The results are shown in table 5.

TABLE 5.—*Thromboembolism*

	Bowel Operations *	Fatal Pulmonary Emboli	Mortality
Prior to August 1945	439	5	1.1%
Subsequent to August 1945	246	0	0

Prophylactic measures:

1. Early active exercise of legs hourly when awake
2. Early unassisted movement in bed
3. No pillows under knees
4. Vigilant daily examinations for early signs of deep venous thrombosis of lower extremities
5. Early ambulation, from 2 to 5 days, depending on the operation
6. Elastic bandages in selected patient

Indications for anticoagulant therapy:

1. Tenderness over the deep calf veins; (*a*) Homan's sign; (*b*) Moses' sign
2. Unexplained concomitant rise in temperature and pulse; (*a*) Allen's sign
3. Previous embolic phenomena
4. Evidence of superficial or deep thrombophlebitis
5. Circulatory disturbance of the lower extremities
6. Cardiac disease

Therapy

1. Combination of heparin and "dicumarol": 20 cases
2. Femoral ligation: 1 case; no mortality

* Largely abdominoperineal proctosigmoidectomies.

OTHER POSTOPERATIVE COMPLICATIONS

With proper preoperative care and attention to replacement of blood lost during the operation, shock is encountered seldom. It has been our experience that whole blood is much more efficient in the prophylaxis and treatment of shock than plasma. Hemorrhage has not been encountered, although its occurrence after the use of sulfonamide compounds has been mentioned. For this reason synthetic vitamin K is used routinely for twenty-four to thirty-six hours postoperatively.

The incidence of adynamic ileus has been minimal since intestinal suction and high concentrations of oxygen have been used routinely postoperatively until peristalsis returns.

Atelectasis is one of the most common postoperative complications in our experience and is manifested early by a sharp rise in temperature. Treatment should be immediate removal of the bronchial obstruction by suction with intratracheal catheter or bronchoscopy.

Postoperatively continuous drainage of the bladder and frequent irrigations are used until vesical function has returned to normal as indicated by cystometry and the amount of residual urine present. Prostatic resection has not been indicated.

In regard to wound care and wound complications it may be said that with the use of alloy steel wire for closure, plus Babcock sump drainage, sulfonamide compounds, the antibiotics and vitamin C the incidence of complications has been reduced to a minimum.

SUMMARY AND CONCLUSIONS

In a series of four hundred and eighty-eight bowel resections, three hundred and forty-six were performed prior to January 1946 with 15 deaths (6.4 per cent) and one hundred and forty-two subsequent to that date and prior to May 12, 1947 with no deaths. It is our opinion that this reduction in mortality was due to careful preoperative evaluation, preparation and postoperative care.

Preoperative evaluation and preparation require several days, during which time an attempt is made to create optimal nutritional, fluid, electrolyte, nitrogenous and vitamin balance and a clean, tranquil bowel.

A combination of phthalylsulfathiazole and streptomycin constitutes the best preoperative antibacterial agent. The latter should be used for only forty-eight to seventy-two hours, since reversion occurs frequently.

Nutrition of the patient with particular attention to protein metabolism fluid and electrolyte balance is essential postoperatively.

Evidence is presented that intensive prophylaxis and anticoagulant therapy are adequate to prevent the occurrence of fatal pulmonary emboli.

Other postoperative complications are briefly discussed.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. SMITH, BACON AND ROWE

DR. FRANK H. LAHEY, Boston: I would strongly urge on gastroenterologists that they do not send these patients to surgery so full of barium. There is nothing that makes it more difficult to resect a colon. Our gastroenterologists have done their utmost in these cases with castor oil and other vigorous intestinal evacuants, but it takes time and wastes beds in the hospital, and unless the patients are sent home, in many of the cases, and given time, they cannot be thoroughly emptied of their barium. There should be better planning as to the introduction of barium into the alimentary canal. I have had so much barium to deal with that in some of these cases the only way I could prevent the patient from being closed and reopened was to milk the barium into segments I could resect, in order to get rid of it, particularly in the sigmoid and in the rectum, where the lesion could be handled. I am sure that the administration of the sulfone group of drugs and streptomycin is desirable; however, yesterday at the Section on Surgery, mortality rates were reported to be about the same in the hands of those who employ them and in those who do not. On the other hand, we do not often employ suture methods in the large bowel and certainly not in the anastomoses in the pelvis and in the abdominal sacral region, and so it is of less importance to us. Regarding emboli, we have certain rules. We are not the ardent advocates of vein ligation that many others are. We have been able to maintain satisfactory figures as to pulmonary emboli with the use of anticoagulants. We have a rule that if the patient has had a two stage operation and there is a thrombosis or sublethal infarct emboli, in those cases a bilateral ligation must be done before the second major operative procedure is undertaken. There is one other thing. We must realize that many of these persons who are being submitted to these major surgical procedures are receiving transfusions while under an anesthetic; this does away with the opportunity to introduce small amounts of blood in order to observe the early evidence of mismatching. There are no evidences of mismatching in patients under anesthesia, and I believe if we knew the number who have died due to improper matching, from transfusions administered while under an anesthetic, it would be tremendous. We have had a small number. Think of the opportunity of a girl's passing through the ward, picking up several blood specimens; think of the opportunities for mistakes that can be made, and what actually hangs on them—a life, if a wrong tube is used and mismatching results. For that reason double matching is necessary in order to be absolutely safe in this group of cases.

DR. EDGAR J. POTH, Galveston, Texas: As regards streptomycin, I agree with Drs. Bacon and Rowe concerning the development of resistance. It occurs in the course of three or four days; when streptomycin is used, it can be used for only a short period of time. Succinylsulfathiazole and phthalylsulfathiazole should be given for a minimum of seven days in full therapeutic doses to effect adequate preoperative preparation. If phthalylsulfathiazole is given, the simultaneous administration of a mild purgative is usually required to obtain an empty bowel and satisfactory mechanical preparation. Furthermore, the postoperative administration of these two drugs for twelve days will largely eliminate infections of the urinary tract. These slides illustrate the influence of succinylsulfathiazole and phthalylsulfathiazole on healing following anastomosis of the colon. The first slide demonstrates the edema of the mucosa extending for an inch (2.5 cm.) on either side of the line of suture. In the next slide it is obvious that the edema is present in only one or two folds of the mucosa to either side of the anastomosis. This animal received succinylsulfathiazole for two weeks preoperatively effecting a prolonged attenuation of the bacterial flora. These photomicrographs of sections from the line of suture on the third postoperative day show (in the control) edema, extensive polymorphonuclear infiltration, and no evidence of revascularization or fibroplasia. The next slide shows early healing with orderly fibroplasia, revascularization, slight edema and moderate polymorphonuclear infiltration. In brief, succinylsulfathiazole and phthalylsulfathiazole favor healing of the bowel.

DR. ROBERT J. ROWE, Dallas, Texas: I should like to emphasize that prolonged oral administration of streptomycin may be very dangerous. This was brought forcibly to our attention when a fatal pelvic and abdominal peritonitis occurred in the patient whose stools contained the resistant Aerobacter aerogenes preoperatively. The same organism was isolated at autopsy and found to be resistant to the sulfonamide compounds as well as to streptomycin. No organisms resistant to sulfonamide compounds or streptomycin were isolated from the preliminary specimens of stool. This brings up the possibility that streptomycin may also increase the resistance of certain coliform organisms to the sulfonamide drugs. This series is entirely too small for definite conclusions. However, if streptomycin-resistant organisms occur in one third of the patients, the administration of streptomycin for longer than forty-eight hours would seem to be contraindicated. Since these results are at a variance with those published by another group, further study of this problem is indicated before the value of oral streptomycin can be estimated.

INNOCENT MITRAL SYSTOLIC MURMURS. The situation and distribution of these murmurs and the effects upon them of a change in posture and deep breathing make it possible to tell them from the murmurs of organic heart disease. The phonocardiograph confirmed this clinical classification and located the murmurs either in mid-systole or late systole; it also showed the absence in such cases of auricular systolic and diastolic murmurs. In patients with mitral stenosis the phonocardiograph showed that the murmur which presented clinically as a systolic murmur usually started during the P-R period of the electrocardiogram, that is, during auricular systole, as did the presystolic murmur. Even in the few exceptions where the murmur was later and coincided with the start of ventricular systole, the term "mitral incompetence" would have been incomplete as in each there was a mid-diastolic murmur giving proof of mitral stenosis. The common incidence of a mid-diastolic murmur immediately succeeding the third heart sound in mitral disease, for it was found in each of 74 cases, stimulates the clinical search for this murmur in patients suspected of the condition. Should future investigation show that this is an invariable graphic finding in mitral disease it will prove to be a physical sign of inestimable value.—Evan, British Heart Journal, October, 1947.

Special Article

REPORT OF THE MEDICAL MISSION TO PUERTO RICO AND TO THE VIRGIN ISLANDS

ERNEST E. IRONS, M.D.
Chicago

In May 1947 the Secretary of the Interior requested several members of the American Medical Association to consult with him about what measures might be taken to improve the medical care of the indigent in certain portions of the United States and outlying regions. At this conference, which included the Executive Committee of the Board of Trustees of the American Medical Association, Dr. Morris Fishbein and Dr. George Lull, the Secretary of the Interior, Mr. J. A. Krug, requested this group to organize medical missions to include those to Alaska and to Puerto Rico and the Virgin Islands. Dr. W. A. Morgan, attached to the office of the Secretary of the Interior, was made the secretary of this group and accompanied the mission to Puerto Rico and the Virgin Islands.

The mission to Puerto Rico and the Virgin Islands as organized included:

Dr. W. L. Benedict, Chief of the Eye Department, Mayo Clinic.

Dr. E. E. Irons, Internal Medicine, University of Illinois.

Dr. James McLester, Nutrition, Birmingham, Ala.

Dr. E. C. Person, Surgery, Cornell University, New York.

Dr. H. N. Sanford, Pediatrics, Presbyterian Hospital, and University of Illinois, Chicago.

Dr. G. M. Saunders, Epidemiology, Washington University, St. Louis.

Dr. John H. Willard, Gastrointestinal Diseases, University of Pennsylvania.

Dr. John Youmans, Dean of the University of Illinois, Tuberculosis and Nutrition.

Miss Edna Newman, Director of Cook County Hospital School of Nursing, Chicago.

Members of the mission saw many patients, including those suffering from surgical, medical and ophthalmologic difficulties.

Part of the commission reached San Juan, Puerto Rico, from New York on January 20, other members arrived a few hours later from Miami, Fla. We were met by officials of the health department, and as soon as the real intent of the commission was understood full cooperation was received from physicians and other officials. We at once conferred with Dr. Juan A. Pons and laid out a program of visits to various institutions by the members of the commission. In a number of instances the same institution was visited by two or three members, but it seemed important for each member of the commission to come in personal contact with as many physicians as possible. Dr. Morgan and I went to call on Governor Pinero. We got in touch with Acting Governor de Castro at

St. Thomas, Vrrgin Islands, and went by plane on January 23 to St. Thomas to arrange for appointments for all the members of the commission.

Contacts with the physicians of Puerto Rico were arranged for by means of round table conferences, a limited number of lectures and by arranging daily schedules for each member of the commission to visit hospitals and observe their general working and how they fulfilled the special functions in which the member of the commission was interested. On a number of occasions we met with larger numbers of physicians. We believed that the intent of the Secretary of the Interior probably could be best carried out by a combination of observations concerning medical conditions in practice and in hospitals and by the observation and examination of a limited number of patients in consultation with the physicians. For example, Dr. Benedict saw many patients with eye diseases in several hospitals in Puerto Rico and also those in St. Thomas and St. Croix, Virgin Islands; other members saw a number of medical and surgical conditions in which our advice was asked. From the reactions of the Puerto Rican and Virgin Island physicians, it is believed that the visit will encourage them and stimulate a better quality of medical service.

MEDICINE, ECONOMICS AND NUTRITION

The health of people is closely connected with their economics and nutrition. This is especially true of Puerto Rico and the Virgin Islands because in both groups there is a chronic condition of undernutrition, in fact, the greatest single factor in the health of the people of Puerto Rico is that of nutrition. The total food supply, including what is raised locally and what is imported with funds derived from sugar, is not adequately sufficient to feed the population. The only food not imported is sugar. Some improvement of the total diet of the people is being accomplished by educational methods in the use and preservation of foods and the use of fruits such as guavas and mangoes, which are available in season but often go to waste. Even with these comparatively minor dietary improvements, the total food supply available for Puerto Rico based on local production and present economy is becoming more inadequate. This is because the over-all economy of Puerto Rico is inadequate to support the rapidly increasing population. Figures based on death rates and birth rates indicate that with a population of something over 2,000,000 (620 per square mile in an agricultural community) the net population of Puerto Rico increases by 1 every eight minutes, or 65,000 every year.

Government expenditures by military personnel during the war temporarily improved the economic situation. This seems to have been reflected in a reduction of the death rate from 20 in 1937 to 13 in 1947. Another method of improving the economics has been suggested in the development of a tourist economy. Until recently the almost complete absence of hotel accommodations for winter tourists has prevented the use of a very pleasant climate to produce revenue from tourists. If the present definite increase in hotel accommodations could be augmented to a greater extent, a decided increase in revenue would result, particularly in and about San Juan.

Measures are being taken to increase the use of locally caught fish by the population, which would seem possible with the development of refrigeration systems.

EMIGRATION

Years ago a considerable number of Puerto Ricans were taken to the Southwest region of the continental United States. A similar attempt to move some Puerto Ricans to Hawaii was not especially successful. It is now suggested that emigration to South America and to Central America be considered. Some such programs might be partially successful; assuming that it would work, the removal of over 50,000 Puerto Ricans a year would be necessary to hold the population of Puerto Rico at its present level.

INCREASE IN INDUSTRIALIZATION

Progress has been made in establishing industries in Puerto Rico. The glass bottle and paper carton factories and the cement plant are examples, but such development as is possible cannot take care of more than a fraction of the increasing population. In the past certain industries have been established only to fail by reason of strikes fomented by labor leaders from the United States. The Wage and Hour law passed some years ago, with the best intentions as far as continental United States was concerned, interfered greatly with the needlework industry in Puerto Rico. Although this law was intended to help the underprivileged, it resulted in the accentuation of economic problems in many Puerto Rican families without correcting the difficulties.

EDUCATION

There are estimated to be 540,000 illiterate persons 5 years of age and over. In Puerto Rico the educational program is handicapped by the difficulty in getting qualified teachers. The original educational program which provided for English as the teaching language has now been modified so that English is one of the subjects taught and is not the language of teaching, especially in the lower grades. Many of the teachers have had limited educational preparation.

BIRTH CONTROL

In 1937 the transmission of information on birth control was legalized by the Puerto Rican Supreme Court, has limited such information to cases in which there are medical questions of health involved.

V 13 1948

Now in 1948, there are twenty-seven birth control clinics but they have thus far had no demonstrable effect on the birth rate. The net reproduction index in Puerto Rico is 1.7, the highest in the world. In Belgium with the population density of 700 per square mile, the net reproduction rate is 0.75. The life expectancy in Puerto Rico in 1940 was 45 years.

MEDICAL SERVICE

There are about eight hundred physicians in Puerto Rico, at least two hundred of whom are in and around San Juan; rural districts are poorly supplied. This situation was accentuated during the war as it was in continental United States. It was reported that seventeen municipalities were without physicians. It is said that some sixty-four physicians were brought in from Cuba and Santo Domingo with the understanding that they should have temporary licenses only. The average performance of these physicians was far below standard. Most of these imported physicians did not go where they were expected to go. This importation also has been a source of irritation between the Puerto Rican Medical Association and the Insular Department of Health. This practice has been discontinued, and it is to be hoped that it will not be resumed; otherwise, standards of medical service in Puerto Rico will be lowered rather than raised.

A large proportion of physicians on the staffs of municipal and district hospitals are on a salary averaging from $300 to $450 per month. Many of these men give adequate service for value received; many more give service of poor quality. It is easy to understand how a physician in a municipal hospital, where he has nothing to work with and no encouragement, will deteriorate even though he receives a relatively good salary. Undoubtedly there will be improvement in many municipal hospitals when the standards of operation of the health centers become established. One solution of this question of service in municipal hospitals would be to place the responsibility for operation under the direction of the Insular Commissioner of Health. Such a change probably would be opposed by local political influence. The Commissioner of Health has a plan for rotating the rural physicians into the district hospitals. This would improve the performance of the physicians in rural communities.

RURAL COMMUNITIES

Members of the large strictly rural population between the towns must look to adjacent municipalities for such medical attention as they get. They have little transportation and no funds to pay for such as is available. In many of these regions there seems to be no possibility that a physician could make a living because of the extreme poverty of the people; the only alternative seems to be that of improving the care given through public health measures. Much has already been done to reduce the incidence of malaria and hookworm.

To carry health activities to rural communities, there have been set up fifty-five type A units (building, equipment and personnel) which operate sixty-five rural health units. In addition there are twenty-one type B, or purely public health, units. Many of these are associated with milk stations. Adequate supervision of those units is not available. In some which I saw in operation, the quality of service was extremely poor. In the past year an effort has been made to extend the training of personnel through scholarships, in service institutions, short courses, seminars, conferences and the like for the positions as nurses, sanitary engineers, sanitary inspectors, medical social workers, clerical personnel, physicians, public health aids, nurse-midwives, x-ray technicians, milk station aids and others.

HOSPITALS IN PUERTO RICO

District Hospitals.—Five district hospitals operate in Puerto Rico; two others are planned, all under control of the insular government. Their operation has been vastly improved by the efforts of Dr. Juan A. Pons, who was made commissioner of health of the island about 18 months ago. The quality of work at the Bayamon District Hospital is excellent so that I believe most members of our commission felt that it justified approval of this hospital for intern and residency training. Next in order of excellence is the hospital at Arecibo. That at Fajardo at the eastern end of the island is well appointed but seems to lack personnel and internal harmony. It has been reorganized for a shorter time, and this may account for the deficiencies noted. The hospital at Aguadilla is not as well advanced in regard to organization as the others. Lack of personnel is the chief difficulty. The district hospital at Ponce is not well operated. On the whole, however, there has been an enormous improvement in the last two years in the operation of these hospitals and they are a credit to those charged with medical care in the island.

Municipal Hospitals.—The municipal hospital at San Juan is doing excellent work. The municipal hospital at Arragua, which I did not see, is said to be doing good work. In the remaining municipal hospitals in various towns the conditions of the hospitals and the kind of work done in them is not creditable. Apparently the difficulty is largely due to the political domination of hospital operation and the employment of physicians who have poor ideals or no ideals at all. Almost without exception there is an air of hopelessness and lethargy. In some hospitals the beds were dirty. Records were almost nonexistent. It is possible that in time the standards demonstrated in the

district hospitals and in the smaller health centers may stimulate better work in the municipal hospitals. A much more important change would be to place the operation of municipal hospitals under the insular government. At present most municipal hospitals are as much a discredit as the district hospitals are a credit. This unfavorable opinion of municipal hospitals is supported by the comment on other municipal activities by the Commissioner of Health of Puerto Rico in his annual report 1946-1947, page 39.

OTHER HOSPITALS

There are two large hospitals for tuberculosis at Rio Piedras and a new hospital planned at Cayey. The hospital for the insane at Rio Piedras has accommodations for about 800 persons, but there are 1,400 patients. Dr. Fernandez-Marina, who has been in charge here only six months, received three years of preliminary training in St. Elizabeth's Hospital, Washington, D. C. He is doing good work under great difficulties. It is understood that plans are under way for the enlargement of this institution.

LEPER COLONY

There are 32 patients at the leper colony; in addition, 11 are on parole. This number of cases is said to represent about 10 per cent of the total cases on the island.

PRIVATE HOSPITALS

The Presbyterian Hospital at San Juan has one hundred and ten beds, is well run and has been a training ground for improvement of medical practice in Puerto Rico. St. Luke's hospital at Ponce has eighty-six beds, also the Pila Clinic has three hundred beds and does excellent work. A special hospital for the treatment of cancer in Santurce has seventy beds. Most of the patients here treated are indigent. There are a number of private clinics, sometimes with a small number of beds attached, in which those able to pay are treated. The vast majority of persons, however, are treated in public instutions.

HEALTH CENTERS

The new health center at Rio Grande has facilities for a dispensary, a milk station and a few beds for the local care of patients who do not require transfer to a large hospital. Fourteen such health centers are planned over the island under the direction of the insular government. It is understood that the funds are available and that in most instances the contracts for construction have been let.

MEDICAL EDUCATION

A survey made three years ago by Dr. Victor Johnson representing the Council on Medical Education of the American Medical Association suggested that if a medical school is established it should be established somewhere in the metropolitan area of San Juan-Rio Piedras. Shortly after this survey an act was passed by the Puerto Rican legislature authorizing the establishment of a medical school in Ponce. This law was vetoed by the governor on the ground that the provisions of the law were not well founded. It is understood that any establishment of a medical school has now been postponed. In the meantime, to afford needed medical education, some fifty scholarships have been established whereby Puerto Rican students may obtain medical education in the United States. There are about one hundred and ten such students now studying in medical schools in the United States and about fifty more supported by private funds. A difficulty has developed in that, with the pressure on the medical schools of the United States to receive veteran students, the number of places available for Puerto Ricans has been further limited. If places for fifty Puerto Rican students per year can be secured in the medical schools of the United States, the physician needs of Puerto Rico will ultimately be met.

The establishment of a satisfactory four year medical course in Puerto Rico would involve questions of standards in the basic sciences of the first two years which would be difficult to attain at present. Furthermore, the operation of a medical school for the first two, or basic science, years is expensive, and as yet there do not seem to be sufficient men available for the satisfactory conduct of the last two, or clinical years. This situation may change with the improvement in quality of service in the district hospitals.

PRACTICANTES

In addition to the physicians said to have medical training in Puerto Rico, there is another group of "practicantes." Many of these have acted as male nurses and gradually have expanded their activities so that at present there are about one hundred licensed male nurses and about one hundred licensed "practicantes," who attempt minor medical procedures. They also speak of themselves as minor surgeons and regard themselves as a distinctly professional class. Many of their performances are regarded as injurious to the persons on whom they work. In 1945 the legislature of Puerto Rico legalized the practice of "practicantes."

The unfortunate effect of such a law will be to impose on the poorest inhabitants the worst type of medical service.

GRADUATE MEDICAL STUDY

The education of a physician has only begun when he receives his diploma in medicine. Further progress depends on his own efforts to learn and on the facilities afforded him to improve his knowledge of medicine. This educational process can be carried on in formal school or in his daily practice in hospitals, provided these hospitals are properly operated. A teaching program in a hospital is a large factor in improving the quality of care given to patients in that hospital. The School of Tropical Medicine and the

V 136
1948

several bureaus of the insular government of health and hospitals afford training grounds for the development of better physicians.

THE SCHOOL OF TROPICAL MEDICINE

The School of Tropical Medicine, a graduate school, was organized under an Enabling Act passed in 1928 which provides for a joint effort between the University of Puerto Rico the insular government and Columbia University, New York. Within this past year Columbia University found it necessary for budgetary reasons to discontinue its contribution of $30,000 a year, and it was at first feared that Columbia would be forced to withdraw from the school. Arrangements have now been made whereby Columbia retains the same position under the Enabling Act as it did before but is obligated to pay only the salary of the director of the school. Present plans look toward the enlistment of interest from other American universities, which will be offered the opportunity to join in the program through Columbia University. Dr. H.W. Brown of Columbia is at present making a study of the possibilities for research at the School of Tropical Medicine. Considerable research is now going on at the school. An outline of the possibilities for research will be formulated by Dr. Brown and distributed to various universities which may wish to send students to avail themselves of the educational opportunity afforded.

The School of Tropical Medicine has been, in my opinion, the greatest single factor in improving educational standards in medicine in Puerto Rico. Many of the men now occupying important and educational positions in medical life of Puerto Rico date their educational progress from the stimulation received from study and residence in the School of Tropical Medicine. Columbia University also has availed itself of the opportunity for resident study by members of its faculty. significant work has been done on diseases current in Puerto Rico such as sprue, filariasis, schistosomiasis and diseases arising from nutritional deficiencies. The School of Tropical Medicine remains the strongest single element for improvement of medicine in Puerto Rico. The present director is Dr. Morales Otero. The school operates a school of public health for the training of technicians and offers graduate training for physicians in public health. It operates a dispensary with about 20,000 patients a year. These are indigent patients who are referred by the mayors of the several municipalities who certify to their indigency.

SUMMARY OF MEDICAL CARE

The quality of medical care of the people of Puerto Rico has been greatly improved in the last ten years. Sanitation has been improved through the educational and engineering measures instituted by the Rockefeller Institute, the insular government and, more recently, by the Army and Navy medical corps. Medical care in governmental hospitals has been marvelously improved as far as four of the district hospitals and the municipal hospital in San Juan are concerned. The establishment of health centers similar to that at Rio Grande, of which ultimately there will be fourteen, will carry this improvement in medical care a step further out into the rural areas. The setting up of milk stations throughout the rural districts also has helped in the education of the populace in better methods of caring for themselves.

Against this very creditable improvement, there is the lamentable quality of care given in most of the municipal hospitals and the extremely sketchy medical care received by the inhabitants, particularly in rural districts. The quality of this care cannot be improved by the introduction of badly trained and ignorant physicians, especially those whom the governments of surrounding countries, whose own medical care needs improvement, are willing to export to Puerto Rico. While the quality of medical education and medical care in Puerto Rico is improving, more could be done with present personnel if some of the physicians now receiving relatively good salary were induced to give a day's work for a day's pay.

THE VIRGIN ISLANDS

Medical care of the indigent in the Virgin Islands, St. Thomas, St. Croix and St. John, is also closely connected with the economics and nutrition of the people. The population of St. Thomas is estimated as 16,000 to 18,000; that of St. Croix, 12,000; that of St. John, a few hundred. Agricultural possibilities in St. Thomas are slight; those of St. Croix are somewhat better, although the fertility of the land of St. Croix for the growing of sugar cane is inferior to that of Puerto Rico.

During the war the construction program of the Navy and the expenditure of funds by Navy personnel relieved the economic situation. Possibly the best answer for St. Thomas and in part for St. Croix would be a tourist economy. This would probably be proportionately more effective than a similar program in Puerto Rico.

One difficulty arises through the longstanding attitude of government toward the people. The Danes, who received the Virgin Islands as a present from the British in 1679, wished from the beginning to maintain the favor of the inhabitants, and when it was recognized that the children of the indigent needed help, milk was given away. After our Navy took over this free care was extended, but some persons who had a relatively good income also insisted on free milk and then free prescriptions; thus governmental care has increased progressively. It is obviously difficult to administer free care and free food and at the same time to maintain any sense of responsibility in the individual. The situation in St. Thomas is an

excellent example of what socialism carried to its ultimate end will do to the sense of responsibility of the individual.

MEDICAL CARE

The medical program at St. Thomas calls for seven physicians. At the time of our visit there were but three: another was expected shortly from St. Croix. The hospital at St. Thomas with eighty-nine beds is primitively built, but it is clean and the patients are well cared for. There is no resident physician on St. John, but one from St. Thomas goes there once or twice a week. The annual budget for St. Thomas is $160,000 for medical care, $200,000 for education. Additional medical personnel is perhaps the most urgent requirement.

The administration has put into practice a plan for a financial screening by which those able to pay shall not get free service. This is rather an unusual feature of administration in a population which for years has been led to accept and expect free service of all kinds. It is a refreshing find in this kind of economy and suggests that those who are committed to a socialistic program have begun to find something wrong with it. In the past year $6,000 of funds were thus collected, and the administration believes that this amount can be increased up to $10,000 or $12,000.

The inhabitants of St. Thomas are 95 per cent colored. St. Thomas has an island council of nine elected members. The president is Mr. Gordon. St. Croix has an elected council of seven members. The interests of the two islands are sufficiently diverse that frequently the two councils have difficulty in agreeing.

Members of the commission saw a number of patients with the physicians at St. Thomas and also at St. Croix. The work of Dr. Benedict in ophthalmology was especially appreciated by many patients whom he saw, and by their physicians. The subsistence rate in the hospital is 55 cents per patient per day.

At St. Croix all members of the mission visited the hospital installations at Frederiksted and Christiansted and the "King's Hill", home for the aged and infirm. The hospital at Frederiksted is badly in need of new construction and modernization. Laundry facilities are practically nonexistent, as are other facilities for the operation of a good hospital. The subsistence rate is 35 cents a day in this hospital and 28 cents a day in the old peoples' home. The hospital at Christiansted is built on a hillside, and it is difficult to move patients from floor to floor without an elevator. Less than 1 per cent of the people of St. Croix can be said to be well to do. It is understood that there is a $10,000,000 fund available for the extension of medical services over a period of five years. Of this fund we were informed there will be available for hospital construction at St. Thomas $266,000, St. Croix $158,000, St. John $28,000. The effectiveness of these appropriations will be greatly lessened, however, by reason of the increase in construction costs.

On St. Thomas and St. Croix the medical care of the indigent is being accomplished under difficulties by reason of lack of personnel. Sanitation has been greatly improved, but there still remains the problem of nutrition. Economically and socially these islands are essentially instances of socialization; however, under present economic conditions it is difficult to see how they can be taken care of otherwise than by government subsidy.

Clinical Notes, Suggestions and New Instruments

A MODIFICATION OF THE RESPIRATOR

DONALD E. HALE, M.D.
and
W. JAMES GARDNER, M.D.
Cleveland

The respirator[1] in widest use consists of a box in which one places the patient in order to subject his body to alternating positive and negative (or zero and negative) pressures. These changes in pressure cause air to pass in and out of the lungs, as the respiratory system of the patient is in communication with the air outside the box. The patient's head protrudes from the end of the respirator, while a foam rubber diaphragm, placed around his neck, provides an air-tight seal. This arrangement permits full use of the respiratory capacity, i. e., expansion of the chest and descent of the diaphragm.

A need for the use of the respirator and a contraindication to the use of the rubber diaphragm about the neck were recently demonstrated in a patient treated in the neurosurgical department of the Cleveland Clinic.

REPORT OF CASE

A young woman of 24 had quadriplegia, intercostal and diaphragmatic paralysis and signs of cord compression at the level of the second cervical segment. She was able to spend part of each day outside a respirator, during which time she breathed entirely with the accessory muscles. She could sleep only while in the respirator. There was a history of two episodes of spontaneous subarachnoid hemorrhage. A clinical diagnosis of aneurysm of the vertebral artery was made, and cervical laminectomy was advised. The problem of maintaining adequate aeration after operation then presented itself. The patient could be maintained in comfort in a standard respirator, but it was impracticable, if not impossible, to use the standard respirator with the sponge rubber collar about the neck in the presence of a fresh cervical laminectomy wound.

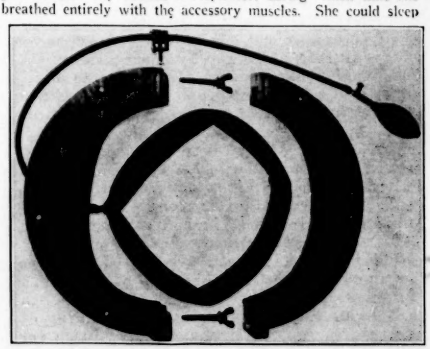

Fig. 1.—The halves of the wooden frame, the manometer bulb and the wing bolts. The frame is affixed to the diaphragm by bolts which pass through the eight perforations shown.

1. The Emerson respirator is described in this paper.

V 13
1948

Accordingly, the respirator was modified so that the air-tight seal could be passed about the thorax instead of the neck. This was accomplished by procuring a new head for the respirator from the manufacturer. The opening in the head was enlarged to a diameter of 24 inches (60.96 cm.), and to this was attached a vulcanized rubber diaphragm similar to that used in the standard respirator, but perforated with an opening 16 inches (40.64 cm.) in diameter. An oval wooden frame was prepared in halves, to be fixed to the diaphragm with bolts (fig. 1). The opening in the frame had the shape of a transverse section of the patient's thorax at the lower end of the sternum, but had a diameter 3 inches (7.62 cm.) larger in both directions. In the inner margin of the frame was a groove 1 inch (2.54 cm.) in width and 1 inch in depth, which snugly received a ring made of bicycle inner tubing, 1½ inches (3.8 cm.) in diameter. A tube for inflation of this ring led through a hole in the bottom of the grooved frame and was connected to a hand bulb with a valve. The head support of the respirator was replaced with a plywood board 18 inches (45.7 cm.) square, to each side of which was affixed a removable arm support measuring 8 by 24 inches (243.8 by 731.4 cm) (fig. 2).

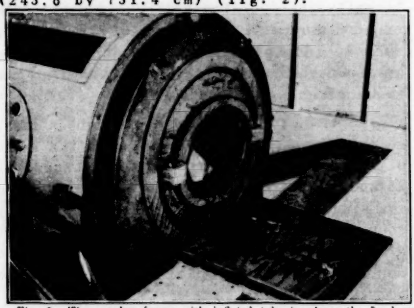

Fig. 2.—The wooden frame with inflated tube in place, the head and shoulder support and the arm boards.

The patient was placed on the mattress of the respirator. The inflatable tube was placed about the thorax from below, and the patient was passed in a cephalad direction through the head of the respirator until its opening was about the region of the lower sternum. The two halves of the wooden frame were approximated about the chest below the breasts, the inflatable tube intervening between frame and skin. Inflating the tube and clamping the head to the body of the respirator completed the application (fig. 3).

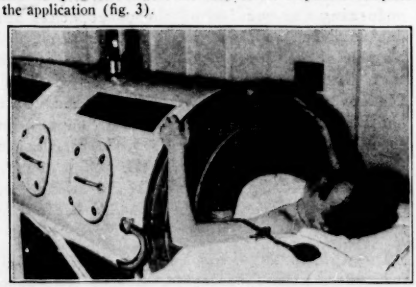

Fig. 3.—Position of the patient in the modified respirator.

An operation was performed on Aug. 1, 1947. Under anesthesia with "pentothal sodium" N. N. R. (sodium 5-ethyl-5-[1-methylbutyl] thiobarbiturate) an orotracheal tube was inserted and the patient was placed in the sitting position in the operating chair. A laminectomy of the upper cervical segments was performed, disclosing an angiomatous malformation of the second and third cervical segments of the spinal cord. The lesion was not removable. The wound was closed, leaving the dura open for purposes of decompression.

After operation the patient was placed in the modified respirator intermittently until August 16. At this time she left the Cleveland Clinic and was taken to another hospital. For six days she was in the standard respirator with the modified head, which she used for the next four weeks. Since that time she has used the standard head intermittently, chiefly at night.

SUMMARY

A modification of the standard respirator allows the rubber seal to be applied to the thorax instead of to the neck.

The use of this device permits uncomplicated and comfortable healing of incisions about the neck.

Movements of the lower part of the thorax and the diaphragm provide ample exchange for satisfactory oxygenation of blood.

The device affords the advantage to the patient of permitting the arms to be outside the respirator and available for such activities as eating and turning the pages of a book. This feature renders the modification particularly suitable for patients who must use a respirator for long periods.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

AUSTIN SMITH, M.D., *Secretary.*

CHINIOFON (See New and Nonofficial Remedies, 1947, p. 186).

The following dosage form has been accepted:

ENDO PRODUCTS, INC., RICHMOND HILL, N. Y.

Chiniofon *(Powder):* 30 Gm. bottles.

PENICILLIN (See New and Nonofficial Remedies, 1947 p. 144).

The following additional dosage forms have been accepted:

ABBOTT LABORATORIES, NORTH CHICAGO, ILL.

Crystalline Penicillin G Potassium in Oil and Wax *(Free Flowing):* 10 cc. vials containing 300,000 units per cubic centimeter. Crystalline penicillin G potassium suspended in peanut oil containing 4.8 per cent white wax U. S. P.

WM. S. MERRELL CO., CINCINNATI

Penicillin Sodium: 1,000,000 units in 20 cc. vials.

PREMO PHARMACEUTICAL LABORATORIES, INC., NEW YORK

Crystalline Penicillin G Sodium in Oil and Wax *(Free Flowing):* 10 cc. vials containing 300,000 units per cubic centimeter. Crystalline penicillin G sodium suspended in peanut oil containing 4.8 per cent white wax U. S. P.

Crystalline Penicillin G Sodium in Oil and Wax: 1 cc. glass disposable syringe containing 300,000 units per cubic centimeter. Crystalline penicillin G sodium suspended in peanut oil containing 4.8 per cent white wax U. S. P.

E. R. SQUIBB & SONS, NEW YORK

Crystalline Penicillin G Sodium: 500,000 and 1,000,000 unit vials.

Ointment Penicillin Calcium: 60 Gm. tubes. Each gram contains 1,000 units of penicillin calcium in a base consisting of beeswax, peanut oil, petrolatum and wool fat.

Crystalline Penicillin G Sodium in Oil and Wax *(Free Flowing):* 10 cc. vials containing 300,000 units per cubic centimeter. Crystalline penicillin G sodium suspended in peanut oil containing 4.8 per cent white wax U. S. P.

THE UPJOHN COMPANY, KALAMAZOO, MICH.

Crystalline Penicillin G Sodium: 25 cc. vials containing 100,000, 200,000, 500,000 and 1,000,000 units per cubic centimeter and 100,000 units in single combination packages with 20 cc. vials of sterile isotonic sodium chloride solution.

Tablets Penicillin Calcium: 50,000 units and 100,000 units with calcium carbonate 0.26 Gm. as a buffer

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street - - Chicago 10, Ill.

Cable Address - - - - "Medic, Chicago"

Subscription price - - - - - Twelve dollars per annum in advance

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent. Such notice should mention all journals received from this office. Important information regarding contributions will be found on second advertising page following reading matter.

SATURDAY, APRIL 10, 1948

EDITORIAL ANNOUNCEMENT

The absence of the compositors employed by the American Medical Association from their work continues. This issue of THE JOURNAL has been prepared largely by the use of Vari-Typer machines. Because of the difficulties of reorganization of the headquarters office necessitated by this situation, the editorial material in this issue of THE JOURNAL has been greatly condensed.

WHAT IS OSTEOPATHY?

In 1939 THE JOURNAL called attention to a case[1] in which the Supreme Court of Kansas entered a judgment ousting an osteopath from the practice of medicine and surgery and decreeing that his license to practice osteopathy permitted him to practice manipulative surgery but that he was not licensed or authorized to prescribe or administer drugs as remedial aids. The Kansas court said that the phrase in the osteopathic act which authorized persons licensed under it to practice osteopathy "as taught and practiced in legally incorporated colleges of osteopathy in good repute" could be construed only in this way. The court said further that if osteopathy had abandoned its fundamental opposition to drug therapy and operative surgery, as of the date of the enactment of the act, 1913, that fact never had been recognized by the legislature of the state of Kansas. The court next said that the statutes of Kansas recognized the "practice of osteopathy" and the "practice of medicine and surgery" as separate and distinct and that the use of drugs as remedial aids and the use of operative surgery did not, in 1913, form a part of osteopathy.

1. State ex rel. Beck, Atty. Gen. v. Gleason (Kan.), 79 P. (2d) 914; 83 P. (2d) 425; Editorial, The Journal, July 29, 1939, page 418.

Both prior to the Kansas decision and since it was rendered the courts have without significant exception limited osteopaths, who are licensed as such, to the field in which they profess to specialize and in which they assert competency; legally osteopathy is a field of healing without the use of drugs and without operative surgery. The Kansas decision was of special importance because the osteopathic acts of several other states contain phraseology similar to that construed by the Kansas court. Apparently osteopaths had interpreted such laws as authorizing them to utilize any modality about which any instruction was given, however meager, in any "legally incorporated college of osteopathy of good repute," in any place at any time. Such an interpretation, if correct, would have provided a simple way of expanding the scope of osteopathic practice.

Even after the decision in the Kansas case, some osteopaths continued to invade the field of medicine and surgery and four successful injunction suits were filed to prevent this invasion. Not only have osteopaths in Kansas sought to practice medicine and surgery but also optometry. Here again the state Supreme Court told them to confine their practice to osteopathy.

Still insistent that their own construction of the Kansas laws prevail over that of the Supreme Court of Kansas, a number of osteopaths, including the four against whom injunctions have been issued, have recently joined in filing before a three judge federal court a complaint against the Governor and the Attorney General to restrain them from enforcing the section of the osteopathic act dealing with scope of practice, as construed by the state Supreme Court, on the ground that that section, as construed, is discriminatory and violative of their rights under the Constitution of the United States. An appeal lies direct to the U. S. Supreme Court from the decision of the three judge court, whatever that decision may be. Evidence in this case is scheduled to be heard beginning April 19.

The issues involved in this case are of tremendous significance not only to the state of Kansas and to those states with similar osteopathic laws, but possibly to all states. The final determination by the U. S. Supreme Court, it has been indicated, may well affect licensure laws generally. If the Supreme Court overrules the Supreme Court of Kansas, it will be entering into the control of medical

V 13
1948

practice. Then the osteopaths, without meeting the requirements all others must meet to obtain the right to practice medicine and surgery from the state legislature and from the state Supreme Court, would have a mandate from the U. S. Supreme Court granting them that right. The issue is worthy the attention of all who wish to protect the rights of individual states to control the practice of medicine within their own borders and also all who wish to maintain a high standard of medical practice in our nation.

REGISTRATION OF CAUSES OF DEATH

State and federal vital statistics offices often experience difficulty in obtaining accurate information on death certificates. The Registrar of Vital Statistics, summarizing a recent study of death certificates filed in one state, notes that half of all the certificates filed were found to be defective in regard to medical certification of cause of death.

The types of defects were classified into three categories: obsolete or unacceptable terminology, incomplete reporting and inaccurate reporting. Obsolete or unacceptable terminology includes diseases reported under nondescriptive names when descriptive names are available, vague and ambiguous terms such as senility, stillbirth and heart failure. Incomplete reporting means the omission of one or more of the following items: type of organism, anatomic site, duration of illness and underlying causes. About half of all defects classed as incomplete reporting are due to the omission of underlying causes of the immediate cause of death. Inaccurate reporting involves confusion between direct and contributing causes, improbable cause order or improbable duration. The omission of underlying causes was the most frequent defect of this type.

The study compared the reporting in rural areas with that in the large metropolitan area located in the state. Both metropolitan and rural physicians filed certificates with about the same number of defects. A special anaylsis of over 100,000 death certificates suggested that a certain portion of the practicing physicians are responsible for a large share of the defective certificates.

These defects present a serious problem to all agencies that use vital statistics, particularly in view of the expected new "International List of Diseases and Causes of Death." The present plan is to classify all deaths by the underlying cause, abandoning the use of the "Manual of Joint Causes of Death." Physicians should become acquainted with latest rules concerning death certification if research in the field of vital statistics is to be successful.

Current Comment

TRANSMISSION OF EPIDEMIC GASTROENTERITIS TO HUMAN VOLUNTEERS

In the summer and fall of 1946 outbreaks of acute gastroenteritis appear to have spread from hospitals in New York to state mental hospitals and prisons.[1] During the next winter sizable outbreaks occurred in fifteen state institutions. In one institution the first cases were noted on December 16 and in about a month 589 cases with 7 deaths were observed in 2,623 inmates and 115 of 354 employees. The spread in this and other institutions was not apparently related to water, food or milk supply and seemed best explained by person to person infection. There are indications that the general population of upstate New York was also affected. The onset was sudden, with profuse, watery diarrhea, frequently with vomiting, usually without fever, the acute stage lasting on the average three days. Thorough examinations by bacteriologic and morphologic methods did not explain the causation of the disease, but in human volunteers, men 21 to 25 years of age, typical cases followed the oral administration of bacteriologically sterile fecal filtrates from patients with the natural disease.[1] The incubation of the experimental disease ranged from one to five days, with a mean of three days. Unfiltered washings from the throats of patients with the experimental disease likewise caused acute gastroenteritis in volunteers. Inhalations by volunteers of throat washings from patients with epidemic as well as experimental infections gave negative results. There seems to be no good reason to question the claim that acute gastroenteritis was transmitted to human volunteers. The experiments were made with completely adequate controls on all sides under the auspices of the New York Board of Health in Albany. The demonstration that the causative agent in the form of acute gastroenteritis here described is present in fecal filtrates of patients is an advance of fundamental importance in the study of such infections. Identification of the causative agent in question awaits further success in such study.

1. Gordon, I.; Ingraham, H. S., and Korns, R. F.: Transmission of Epedemic Gastroenteritis to Human Volunteers by Oral Administration of Fecal Filtrates, J. Exper. Med. 86:409 (Nov.) 1947.

ORGANIZATION SECTION

Washington Letter

(From a Special Correspondent)

April 6, 1948

Cancer Drive Launched in Constitution Hall

Dr. Morris Fishbein, Editor of THE JOUPNAL, was one of several speakers who helped stars of radio and screen launch the annual cancer drive in famed Constitution Hall. On the speakers program with him were: Dr. Vannevar Bush, president of Carnegie Institute and chairman of the Research and Development Board of the National Military Establishment; House Speaker Joseph Martin; Federal Security Administrator Oscar R. Ewing; Douglas Poteat, executive vice president, American Cancer Society, and others. Dennis Day, singer on the Jack Benny program, brought his radio show, "A Day in the Life of Dennis Day," and was master of ceremonies on a program with Nancy Carroll, Ruth Chatterton and other theatrical luminaries.

Entry Into World Health Organization Delayed

Legislation that would make the United States a member of the World Health Organization was killed by a 5 to 2 vote of the House Rules Committee which had tabled the bill without explanation several weeks ago. Republican leaders who would not permit use of their names said that they opposed the bill because they considered it the opening wedge in an effort to have the United States pay medical bills of the entire world. A G.O.P. leader told newsmen: "The bill is dead and it is going to stay dead. The word to that effect has gone out and it will stick." Recently, Dr. Edward L. Bortz, President of the American Medical Association, has stressed the importance to this country of joining the World Health Organization. The Soviet Union joined last week, and only France and the United States are lacking of the twenty-six members of the United Nations needed to bring the constitution of the W.H.O. into effect.

Dr. Bortz declared that when this country does join, the United States and not the Soviet Union will become the dominant member. He stated: "I doubt very much whether the World Health Organization could succeed without the United States. The world needs our knowledge of nutrition, preventive medicine and sanitation, and we need the research results of scientists in other nations. Medical science knows no boundaries.

Nation Urged to Match Total War With Total Medicine

Col. Edgar Erskine Hume, U.S.Army, president of the Association of Military Surgeons of the United States, declared in his address as Kober Lecturer at the Georgetown University Medical School: "We must mobilize our entire resources of preventative medicine and hygiene. All too often, our warfare against disease is defensive only." In other words, he proposed that total war calls for total medicine. Colonel Hume described war as the most terrible of all diseases, yet pointed out that medicine traced its advances through the "stimulus" of past wars. He remarked that the atomic bomb may not prove to be wholly a destructive weapon, as use of radioactive isotopes, byproducts of the manufacture of the atomic bomb, may produce epochal medical advances.

Health Institute Seeks Bethesda Site For New Center

The National Health Institute is negotiating for the purchase of 311 acres of land in Bethesda, Md., as the site of the proposed $40,000,000 medical research center, it was reported here. A Senate Appropriations Subcommittee was asked for a direct $5,000,000 appropriation to start construction this summer, with a contract authorization for another $25,630,000. The new research center would have five hundred beds and be devoted completely to the study of heart disease, cancer and other diseases. The completion date is tentatively set for July 1, 1951. Dr. R. E. Dyer, head of the institute, revealed that the government has already acquired 140 acres of land.

Additional Funds Recommended For Atomic Energy Commission

The House Appropriations Committee has endorsed increased programs of atomic energy research and has recommended that an additional $150,000,000 be added to contract authority for the Atomic Energy Commission. This extra amount was included in a $3,000,000,000 deficiency bill to make up deficits of various federal agencies. A total of $659,091,863 is now included in the commission's new contract authority. The House group urged the commission to "move forward with all possible speed in its research programs, both in the wartime and peacetime uses of the newly discovered secrets." Chairman David E. Lilienthal stated during hearings: "We have to assume, in the desperate state the the world is in, that it is our job to push ahead as fast as possible, not knowing how much time there is left."

Advocates School Health And Transportation Benefits

Senator Brien McMahon Democrat, of Connecticut, has introduced an amendment to the $300,000,000 federal aid to education bill which would extend school health and transportation benefits to all parochial and other tax-exempt, nonpublic schools. He proposed that a new title be added to the measure allocating $5,000,000 for nonpublic schools for purposes permitted under the constitution. He pointed out that under Supreme Court decisions, these are interpreted to be limited to transportation of pupils, school health examinations and related school health services and purchase of nonreligious instructional supplies and equipment

Thirty Washington Children Undergo Treatment for Mental Retardment

Officials of the Children's Hospital Welfare Clinic in Washington, D. C., reported that thirty children are receiving regular doses of glutamic acid, described as a new drug reportedly used in a previous mass test at Columbia University to aid mentally retarded children. Most of the children receiving treatment in the test here are much younger than the group in New York, where teenage subjects were said to have responded favorably.

V 13
1948

Medical Legislation

STATE LEGISLATION

Arizona

Bill Enacted.—H. 4 -XXXXX has become chapter 33 of the Laws of 1948. It enacts an Arizona hospital survey and construction act for the purpose of conducting a survey of existing hospital facilities and a construction program for the building of additional needed facilities. The law provides for the appointment of an advisory survey and construction council, one member of whom shall be chosen from a panel of four submitted by the Arizona medical association and another member of whom shall be chosen from a panel of four submitted by the Arizona society of osteopathic physicians and surgeons.

Kentucky

Bill Enacted—S. 158 was approved March 25. It creates a board of examiners for chiropody and defines chiropody as the diagnosis and the local, medical, mechanical and surgical treatment of ailments of the human foot, and massage in connection therewith, except amputation of the foot or toes, or the use of anesthetics other than local, or the use of drugs or medicine other than local.

S. 342 was approved March 25. It creates a Kentucky Building Commission to have charge of buildings constructed throughout the state and provides that appropriations to this commission shall be used, among other things, for matching funds for hospital construction under any law now existing or that may be passed by the national congress.

Mississippi

Bill Enacted—H. 386 was approved March 23. It provides for the appropriation of $510,000 to the state medical education board for the purpose of carrying out the provisions of the law relating to medical scholarships and loans

Bill Enacted—H. 717 was approved March 23. It provides for the appropriation of $300,000 to defray the expenses of the state program of eradication and control of syphilis and other venereal diseases.

New York

Bill Enacted.—CCH A. Res 161 was adopted March 8. It continues the special joint legislative committee making a survey and study of the social, educational and physical problems of persons afflicted with cerebral palsy.

Bill Enacted.—S 1308 has become chapter 361 of the Laws of 1948. It amends the education law by repealing the existing definition of podiatry and enacting a definition as follows: A person practices podiatry who holds himself out as being able to diagnose ailments of the human feet by mechanical chemical and physical means and or as being able to practice minor surgery upon the feet within the following limitations: the practice of minor surgery shall not permit operations upon the bones, muscles or tendons of the feet or any other part of the body except operations for minor deformities of mechanical and functional nature, including the structures superficial to the deep fascia and including all structures of the terminal phalanges. It shall confer the right to treat for disease, pain, injury and deformity of the feet and it shall not include any other part of the human body. The treatment of fractures shall be limited to simple uncomplicated fractures of the phalanges and metatarsals. The use of anesthesia shall be limited to local anesthetics for therapeutic purposes as well as for anesthesia, and the right to use nonnarcotic postoperative sedatives.

Virginia

Bills Passed.—H. 439 passed the senate March 11. It proposes to require every practicing medical doctor to obtain a revenue license. S. 106 passed the house March 13. To amend the medical practice act, it proposes to authorize the state board of medical examiners to suspend or revoke the certificate of a physician who has been the legally responsible head of a hospital the license of which has been revoked because of illegal practice or conduct or practices detrimental to the welfare of a patient therein by the state board of health. S. 107 passed the house March 13. It proposes to require the annual renewal of certificates to practice medicine, homeopathy, osteopathy, chiropractic naturopathy or chiropody on or before June 30 of each year

Bills Enacted.—H. J. R. 41 was adopted March 13 It directs the Virginia advisory legislative council to make a thorough study of the methods and practices of corporations and associations engaged in furnishing hospital and medical service on the prepayment plan. H. 354 has become chapter 205 of the Laws of 1947. It makes it unlawful for physician dentist or optometrist to practice his profession as a lessee of any commercial or mercantile establishment or to advertise, either in person or through any commercial or mercantile establishment, that he is a duly registered practitioner and is practicing or will practice medicine, dentistry or optometry as a lessee of any such commercial or mercantile establishment. H. 412 has become chapter 244 of the Laws of 1948. It amends the law relating to occupational diseases by including pneumoconiosis within the list of occupational diseases covered by the act. S. J. R. 27 was adopted March 11. It creates a committee to study medical education in general in the state and the relation of medical education to the services that it renders to the people. S 105 has become chapter 68 of the Laws of 1948. To amend the medical practice act, it proposes, among other things, to exempt therefrom interns and residents in legally established and licensed hospitals provided their practice is confined strictly to persons who are bona fide patients within the hospital or who receive treatment and advice in an organized outpatient department of the hospital to which ambulant patients regularly come for professional services rendered under the supervision of licensed members of the hospital staff. Such interns and residents, however, must have completed successfully the preliminary academic education required for admission to examinations given by the board in their particular field of practice or hold a valid license issued in a state maintaining standards acceptable for reciprocity with the state of Virginia. No graduate of a substandard medical school may be so employed except under particular circumstances.

Medical School To Televise

Northwestern University Medical School will use television to bring to the physicians and surgeons attending the annual session of the American Medical Association in Chicago, June 21-25, five days of programs showing both surgical procedures and clinical demonstrations. A committee composed of Drs. Walter Carroll, Stuart Abel and Henry E. Wilson Jr., all of Northwestern's medical faculty, announced that the week-long television program is the first of such magnitude utilizing video methods in medical education at the convention level.

Dr. Carroll said that among the surgical procedures to be televised will be obstetric and gynecologic procedures, including a cesarian section; the "blue baby" operation; early skin grafting in severe burns; gastric resection; surgery of the hand, and surgery of the chest. In addition, the video camera will reproduce a wide range of clinical material in the fields of internal medicine, orthopedics, cancer, dermatology, endocrinology and neurology.

A clinical demonstration concerning peripheral neural injuries will be conducted by Dr. Loyal Davis, chairman, department of surgery at Northwestern, and Dr. Lewis J. Pollock, chairman, department of nervous and mental diseases.

It is planned to broadcast the medical programs from 9 a.m. to noon and from 1 to 4 p.m. on each of the five days. The surgical procedures will be performed in two operating rooms of Passavant Hospital and the clinical demonstrations in adjoining classrooms. About fifteen hundred observers may witness a procedure simultaneously, six hundred in the Sheraton Hotel five hundred on the Navy Pier and four hundred at the medical school. It is estimated that about twenty-five physicians may see a program before each of the smaller screens, while the larger will accomodate about fifty. A television screen measuring 8 by 10 feet (244 by 305 cm.) now is being manufactured and has been promised to Northwestern for the convention period. This screen would accomodate an additional audience numbering in the hundreds.

GOVERNMENT SERVICES

AIR FORCE

DDT DUSTING DURING CHOLERA EPIDEMIC

Two C-47 transport planes equipped with DDT spray tanks flew a total of two hundred and six missions against cholera-carrying flies and malaria-carrying mosquitoes in Egypt, the Mediterranean theater and Germany during 1947. The Air Surgeon's Office, U. S. Army Headquarters in Europe, reports that from October 16, when they answered an emergency request through the United Nations' World Health Organization to help check the cholera epidemic in Egypt, until December 10 the C-47s flew a hundred and ten sorties over the cholera-affected districts of Cairo, Alexandria and neighboring villages.

During two months of serial spraying in Egypt, the transports, equipped with four 200 gallon tanks capable of saturating an area of 1 square mile with the spray in four minutes, sprayed 560,000 pounds of the DDT spray. Members of the two crews who worked seven days a week for two months in Egypt on spraying missions have all been commended by Lieut. Gen. Curtis E. LeMay, USAFE Commander. The DDT spraying, combined with other emergency measures put into effect by Egyptian health officials, turned the tide in combating the epidemic, which reached its peak October 25-27.

Last summer the USAFE planes flew ninety-six missions in the European Command and the Mediterranean theater, where the insect problem and the inaccessible low-flying terrain warranted the use of aerial spraying.

SPECIAL RESEARCH POSITION

The Air University School of Aviation Medicine, Randolph Field, Texas, is in receipt of an announcement from Headquarters Air Force, that the school has been allotted one of a limited number of special research positions authorized by Congress to attract outstanding scientists to service laboratories. The school of Aviation Medicine intends to utilize the new allocation, which carries with it a salary of $10,000 to $15,000 per annum, to establish a civilian position for a director of research. Inquiries concerning this vacancy should be addressed to the commandant.

NAVY

NEW REGULAR OFFICERS

The following naval medical officers have been accepted for transfer from the Naval Reserve to the Regular Navy: Lieut. (jg) John G. Esswein, New Provo, Utah; Lieut. (jg) John G. Esswein, New York; Lieut. (jg) John S. Neill, Valley Station, Ky., and Lieut. (jg) John M. Packard, Saranac Lake, N. Y.

The following physicians from civil life were recently commissioned lieutenants (jg) in the Medical Corps of the Regular Navy: Richard S. Clover Jr., Philadelphia; Clayton R. Entwistle, Philadelphia; Henry L. Hook, Newark, Ohio, and Arthur M. Tyson, Nashville, Ga.

The following physicians were recently transferred from the active Naval Reserve to the Medical Corps of the Regular Navy: Lieutenant Dominic A. Kuljis, of Bellingham, Wash., and Lieutenant (jg) Francis E. Hornbrook, of New Martinsville, W.Va. Comdr. Theodore E. Hoffman of Vassar, Mich., was recently transferred from the inactive Naval Reserve to the regular Navy Medical Corps.

The following physicians from civil life have been appointed to the Regular Navy Medical Corps as lieutenants (jg), temporary; George W. Kleinschmidt, Marietta, Texas; Norman B. Metcalf, Omaha; Frank Ostapowicz, Pittsburgh; Edward J. Rupnik, Library, Pa.; John G. Pifer, Pittsburgh; Carl M. Worley, Pittsburgh; William F. Harding, Pottsville, Pa.; Richard K. Loeffler, Rochester, N.Y.; Arthur R. Molar, Cincinnati; John H. Nickel, Warren, Ohio, and John R. Lee Jr., Brooklyn.

The following graduates of the Navy's V-12 program have been transferred to the Medical Corps of the Regular Navy in the grade of lieutenant (jg): George F. Sager, Portland, Maine; James T. Thorn, Vina, Ala.; and Theodore H. Wilson Jr., Catonville, Md.

Capt. Frank F. Wildebush (MC), Comdr. J. A. Forte Jr. and Lieut. (jg) B. H. Pender have recently accepted appointments in the regular Navy Medical Corps.

ENCEPHALITIS IN THE CAROLINE ISLANDS

A team from the Naval Medical Research Institute, Bethesda, Md., recently returned from the Caroline Islands, where for two months they investigated an outbreak of encephalitis among the natives of the island of Ponape. About twenty natives were affected by the disease each month during the visit of the research team to the island; no deaths have been reported. Engaged in the investigation were Comdr. Herbert S. Hurlburt (MSC), Union City, Pa., and Lieut. (jg) Charles A. Bailey (MCR), Rutherford, New Jersey.

PERSONALS

Dr. Edward L. Bortz, Philadelphia, President of the American Medical Association, was guest speaker at the Naval Medical Center, Bethesda, Md., February 27. Dr. Bortz' subject was "Medical Preparedness." Officers of the Army and Navy Medical Corps, Public Health Service and Veterans Administration and civilian physicians of the District of Columbia and adjacent counties were invited to attend. After the lecture refreshments were served, with the medical officers of the center acting as hosts.

Rear Admiral Joel T. Boone (MC) has been nominated for duty as general inspector of the Medical Department of the Navy. Admiral Boone, who is now on temporary duty as executive secretary of the Hawley Board, will succeed Rear Admiral Daniel Hunt, who will become inspector of medical activities on the Pacific Coast.

Lieut. Leona Jackson, educational director, Navy Nurse Corps, has returned from a tour of civilian institutions to which Navy nurses are assigned for instruction, including the universities of Colorado and Utah, the University Hospitals of Cleveland and the American Association of Nurse Anesthetists, Chicago.

V 13(
1948

VETERANS ADMINISTRATION

ADVISORY GROUP ACCEPTS REAPPOINTMENT

Carl R. Gray Jr., Administrator of Veterans Affairs, announces that all members of the Veterans Administration national advisory group on medical problems have accepted reappointment. They held a regular meeting in Washington, D.C., March 22. The group, appointed in compliance with Law 293, Seventy-Ninth Congress, acts in an advisory capacity to the administrator and to Dr. Paul B. Magnuson, chief of medicine and surgery, on policies concerning medical service to veterans. The following are members of the group: Drs. Charles F. McCuskey, Glendale, Calif.; John S. Voyles, St. Louis; Paul Titus, Pittsburgh; Guy W. Brugler, Boston; W.S. Middleton, Madison, Wis.; Francis J. Braceland, Rochester, Minn.; Claude C. Coleman, Richmond, Va.; Francis M. McKeever, Los Angeles; Derrick T. Vail, Chicago; A.R. Shands Jr., Wilmington, Del.; Dean M. Lierle, Iowa City; Roy Kracke, Birmingham, Ala.; A.C. Christie, Washington, D.C.; J. Stewart Rodman, Philadelphia; George F. Cahill, New York; William A. Hunt, Chicago; and Misses Eleanor Cockerill, Pittsburgh, Pa., and Katherine J. Densford, Minneapolis, Minn.

PROSTHETIC APPLIANCES

During the fiscal year ending last June 30, the Veterans Administration supplied disabled veterans with nearly 300,000 prosthetic appliances, including 8,000 artificial legs, 16,000 braces, 9,400 hearing devices, 32,000 pairs of eyeglasses, 17,000 pairs of arch supports and 157,000 stump socks for amputees.

CONTRACTS FOR HOSPITALS

The contract for the construction by the Veterans Administration of a two hundred bed hospital at Grand Island, Neb., has been awarded on a low competitive bid of $5,244,854.

The contract for the foundation and excavation work for the thousand bed veterans' hospital at Newark, N.J., has been awarded to the lowest bidder for $674,900. A few days ago the control for structural steel work on this hospital was awarded for $1,175,000. Bids for the general construction work will be invited in a short time.

Contracts for the main construction work on the 1,000 bed hospital at Buffalo, N.Y., have been awarded, the successful bid being $9,287,000 for the main building; the heating and ventilating contract was for $1,334,497 in addition, and the plumbing contract for $1,297,433.

The contract for the construction of a two hundred and fifty bed Veterans Administration hospital at Big Springs, Texas, has been awarded to the low bidder for $5,712,739.

The contract for the mechanical construction of the four hundred and fifty bed general hospital at Shreveport, La., has been awarded to the lowest bidder for $2,242,450.

Contracts have been let for the general construction, elevators and staff quarters for the two hundred and fifty bed veterans' general hospital at Iron Mountain, Mich., for $6,052,221.

The contract for construction of a three hundred bed hospital at Wilmington, Del. was awarded February 20, with a low bid of $6,911,000, the Army chief of engineers announced. A company was awarded the contract for the elevators for this hospital with a bid of $236,375.

The contract for the construction of the two hundred bed hospital at Beckley was awarded with a low bid of $4,975,123. The low bid for the contract for the elevators and dumb waiters was $161,513.

Contracts have been awarded for the general construction and installation of elevators for the two hundred bed Veterans Administration general hospital to be built at Altoona. The two contracts amount to $5,103,995.

PUBLIC HEALTH SERVICE

MENTAL HEALTH COUNCIL MEETING

The National Advisory Mental Health Council, which makes recommendations to the Surgeon General in the field of mental health, will hold its next meeting in Washington, May 14-15. Prior to this meeting, the three advisory committees to the council will meet: the Community Services Committee on March 8-9; the Training Committee on March 14-16 to consider applications for training grants, and the Research study Section on April 19-20 to consider applications for federal grants for research under the National Mental Health Council act. The chairman of the National Advisory Mental Health Council is Dr. Edward A. Strecker, University of Pennsylvania School of Medicine, Philadelphia; the chairman of the Community Services Committee is Dr. S. Alan Challman, Minneapolis, and the chairman of the Research Study Section is Dr. Nolan D. C. Lewis, director of the New York State Psychiatric Institute and Hospital, New York.

PERSONAL

Dr. John F. Mahoney, medical director, U. S. Public Health Service venereal disease research laboratory, Staten Island, N. Y., served as chairman at the recent meeting in Geneva, Switzerland, of the Expert Venereal Disease Committee of the World Health Organization Interim Commission. Dr. Mahoney is said to have been the first to demonstrate the effectiveness of penicillin against syphilis, for which contribution he received a Lasker Award through the American Public Health Association in 1946.

EFFECT OF WAR ON CHILDREN

A $20,000 research grant has been awarded to the International Committee on Mental Hygiene under the National Mental Health Act, Oscar R. Ewing, federal security administrator, has announced. The grant will be used to make a study of the effect of war on children. This study will be made under the direction of Dr. David Levy, professor of psychiatry, Columbia University, New York, and will be presented at the International Congress on Mental Health to be held in London, England, in August. The grant was recommended by the National Advisory Mental Health Council and was approved by the Surgeon General, U. S. Public Health Service.

EXAMINATION FOR PHARMACIST

The U. S. Public Health Service announces a written examination to be held June 21-23, 1948 for applicants for appointment in the regular corps in grades of junior assistant pharmacist, assistant pharmacist and senior assistant pharmacist.

Applicants must be citizens of the United States and graduates of a recognized school of pharmacy; applicants for the two higher grades must also have three and four years, respectively, of graduate professional training or experience.

The entrance pay for junior assistant with dependents is $3,391 a year, and for senior assistant pharmacist with dependents, $4,351.

Additional information may be obtained from the Surgeon General, U. S. Public Health Service, Washington 25, D. C, Attention: Division of Commissioned Officers.

Medical News

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

COLORADO

Postgraduate Courses.—The University of Colorado is offering course in nuclear energy in cooperation with the Denver County Medical Society, April 26-29. The course is limited to physicians. Among lecturers who will participate are Dr. Stafford Warren, dean, Medical School, University of California, Los Angeles; Col. Elbert DeCoursey, Brooke General Hospital, Ft. Sam Houston, Texas, and Capt. Lloyd R. Newhouser of the U. S. Navy. Inquiries should be made to the Office of Graduate Medical Education, University of Colorado School of Medicine, Denver. The registration fee is $8; there is no tuition.

The Colorado State Medical Society and the University of Colorado School of Medicine are collaborating in a course in medical public relations to be given in nine lectures during April and May for graduate and undergraduate medical students.

A course for physicians on supervision of the well child will be held at Colorado Medical Center, April 26-28. Dr. Lee Forrest Hill, past president, American Academy of Pediatrics, will be the guest lecturer. The course is sponsored by the University of Colorado Medical Center, the Rocky Mountain Pediatric Society and the State Department of Public Health.

Rocky Mountain Radio Series.—A thirteen week dramatization of medical subjects of particular interest to the Rocky Mountain region, sponsored by the Colorado State Medical Society and titled "Man and Medicine", will be offered to Colorado radio stations early in May. The first program of this local series, called "Beware of the Tick," is being offered stations in Alamosa, Boulder, Canon City, Colorado Springs, Denver, Durango, Fort Collins, Grand Junction, Greeley, La Junta, Lamar, Montrose, Pueblo and Trinidad.

CONNECTICUT

Annual Meeting of State Medical Society.—The Connecticut State Medical Society will hold its annual meeting at the Roger Ludlowe High School, Fairfield, April 28-29 under the presidency of Dr. James R. Miller. Papers will be presented by guest speakers each morning and symposiums and section meetings will be held each afternoon. The speakers include:

W. Edward Chamberlain, Philadelphia, Harmful Effects of Irradiation.
George C. Andrews, New York, What the General Practitioner Should Know about Dermatology.
E. Jefferson Browder, New York, Diagnosis and Treatment of Cranial Injuries.
Edward B. Tuohy, Washington, D. C., Integration of Anesthesiology in Medicine.
Emil Novak, Baltimore; Jacob Hoffman, Philadelphia, and J. Ernest Ayre, Montreal, Canada, Symposium on Gynecology.
Joseph Stokes Jr., Philadelphia, Infectious Hepatitis.
Charles R. Drew, Washington, D. C., Dehydration and Electrolytes.

There will be a symposium on alcoholism Thursday afternoon. The annual meeting of the Woman's Auxiliary will be on April 28 at the Brooklawn Country Club, Bridgeport, beginning at 1 p.m.

FLORIDA

State Association Meeting.—The annual meeting of the Florida Medical Association was held at the Ponce de Leon Hotel, St. Augustine, April 11-14 under the presidency of Dr. William C. Thomas, Gainesville. Among papers presented at three scientific sessions was "The Treatment of Anemia" by Dr. Russell L. Haden Cleveland, guest speaker. Twelve specialty societies met during the weekend preceding the association meeting. The Woman's Auxiliary also met April 12-13.

GEORGIA

State Medical Society Annual Meeting.—The annual session of the Medical Association of Georgia will be held in Atlanta April 27-30 under the presidency of Dr. Steve P. Kenyon, Dawson. The scientific program, beginning April 28, includes:

Henry K. Beecher, Boston, The Abner Wellborn Calhoun Lecture, Relief of Suffering Within the Hospital.
George R. Herrmann, Galveston, Texas, Coronary Artery Heart Disease.
Robert B. Lawson, Winston-Salem, N.C., Recent Concepts Regarding the Spread and Treatment of Poliomyelitis.
Thomas P. Findley Jr., New Orleans, New Concept Concerning the Pathogenesis of Certain Disorders Associated with Aging.

The President's Address on current problems of organized medicine will be given Thursday. Scientific and technical exhibits will be set up in the Academy of Medicine Building. The Auxiliary to the Association will meet in conjunction with the Academy of Medicine.

IOWA

Dr. Soley Appointed Dean.—Dr. Mayo Soley, professor of medicine and assistant dean at the University of California Medical School, San Francisco, has been appointed dean of the University of Iowa College of Medicine, Iowa City, effective July 1.

Dr. Soley will succeed Dean Ewen M. MacEwen, who died September 3, 1947. Dr. Soley will also serve as director of medical services of the University Hospitals and as a research professor in the Department of Internal Medicine. He is a graduate of Harvard Medical School, Boston, 1933, and has been associated with the University of California since 1935.

MARYLAND

Audiometric Testing Resumed.—The Baltimore League for the Hard of Hearing, Inc., has resumed its services for audiometric testing and the fitting of hearing aids, which will be done by appointment only. The League also conducts classes in lip reading and voice improvement for the hard of hearing. Moderate fees are charged those able to pay.

State Society Annual Meeting.—The Medical and Chirurgical Faculty of the State of Maryland will hold its annual meeting April 16-29 at the Sheraton Belvedere Hotel, Baltimore, under the presidency of Charles W. Maxson, Baltimore. Out of state speakers include:

Lee E. Sutton Jr., Richmond, Va., Early Diagnosis and General Pediatric Care of Poliomyelitis.
Col. Raymond O. Dart, Washington, D. C., Role of the Army Institute of Pathology in American Medicine.
John H. Gibbon Jr., Philadelphia, Diagnosis and Surgical Treatment of the Carcinoma of the Lung.
Wanthrop M. Phelps, Children's Rehabilitation Institute, Cerebral Palsy Problem.
George F. Cahill, New York, Tumors of the Adrenal.
William S. Tillett, New York, Present Status of Pneumonia and its Clinical Problems.

V 13
1948

MICHIGAN

Rural Medical Student Loan Fund.—A revolving loan fund to be known as the "Fund for the Encouragement of Medical Practice in Rural Areas" has been created by the Michigan Foundation for Medical and Health Education. A hundred man State Campaign Committee was recently formed with a goal of "$50,000 in Five Months," for the rural practice project. Announcement was made at a foundation breakfast March 11 at Detroit.

Children's Clinic Meeting.—The Detroit Pediatric Society and the Children's Hospital of Michigan Annual Clinic will hold a meeting in Detroit May 12-13. The program begins with a clinical conference at 5 p.m. at the Herman Kiefer Hospital. Following dinner at the Fort Shelby Hotel, Dr. Mitchell I. Rubin, Buffalo, will speak on "Kidney Infections in the Infant." On May 13 the following program will be presented at the Rackham Memorial Building.

William A. Evans Jr., Detroit, Obstruction of Alimentary Tract in Infancy.
Wolfgang W. Zuelzer, Detroit, Management of Purpura.
Warren E. Wheeler, Columbus, Ohio, Avoidance of Tracheotomy in Respirator Patients.
Paul V. Woolley Jr., Detroit, Management of Diarrhea.
James L. Wilson, Ann Arbor, Anaerobic Metabolism in Premature and Newborn Infants.

NEBRASKA

Annual State Medical Meeting.—The Nebraska State Medical Association will hold its eightieth annual assembly May 3-6 at the Cornhusker Hotel, Lincoln, under the presidency of Dr. George E. Charlton, Norfolk. Guest speakers from the University of Illinois College of Medicine, Chicago, will participate in a panel discussion on gallbladder disease following their presentation of papers Tuesday morning. They are:

Roger A. Harvey, Roentgenologic Diagnosis of Gastric Lesions.
Edmund F. Foley, Medical Aspects of Gastric Lesions.
John T. Reynolds, Surgical Treatment of Gastric Lesions.

On Wednesday members of the faculty of Duke University School of Medicine, Durham, N.C., will speak:

Edwin S. Orgain, Treatment of Cardiovascular Disease.
Guy L. Odom, Neurosurgery in Intractable Pain.
Elbert L. Persons, Medical Aspects of the Problem of Joint Disease.
Lenox D. Baker, Marie-Strümpel Arthritis and Undiagnosed Low Back Pain.

Panel discussions for the afternoon will be on lesions of the colon by members of the faculty of the University of Illinois and another on upper extremity pain by members of the faculty of Duke University. On Thursday morning papers will be presented by the following speakers from the University of Wisconsin Medical School, Madison:

Ralph E. Campbell, Management and Treatment of Prolonged Labor.
John E. Gonce, Meningitis in Infancy and Childhood.
Sture A.M. Johnson, Diagnosis and Treatment of Common Skin Diseases.
Edgar S. Gordon, Management of Thyroid Disease with Radioactive Iodine.

They will also participate in a panel discussion on diabetes. Other guest speakers will be Dr. Edward L. Compere, Chicago, "Poliomyelitis"; Dr. Paul Hawley, Chicago, "Prepayment Plans for Health Care," and Charles S. Cameron, New York, "Cancer." The annual banquet will be Wednesday evening.

NEW YORK

Dr. Van DeMark Retires.—Dr. John L. Van DeMark, Rochester, director of Rochester State Hospital, retired from the New York State Department of Mental Hygiene January 16 and will be replaced by Dr. Kenneth K. Slaght, who entered the state hospital service in 1927 at Rochester. On his retirement Dr. Van DeMark was feted by his associates, employees of the hospital and friends.

"20,000 Years of Service."—The Medical Society of the State of New York has issued under the title "20,000 Years of Service" a commemorative booklet in honor of physicians who have served their communities fifty years or more. It is a beautiful booklet with a record of the ceremony in which Drs. Nathan B. Van Etten and Louis H. Bauer participated, and it includes also photographs and brief biographies of physicians who have practiced in New York more than fifty years.

Medical Care Plans Membership Grows.—The six New York State nonprofit voluntary medical care insurance plans approved by the Medical Society of the State of New York increased their membership 425,573, or 71 per cent, during 1947. Dr. Carlton E. Wertz, Buffalo, chairman of the Committee on Economics of the medical society, reported March 14 that over-all enrolment is 1,023,615. Benefits incurred for medical services to members in 1947 amounted to $3,681,555, representing over 110,000 claims.

New York City

Home Care of Cancer to Continue.—An experimental program beginning a year ago (THE JOURNAL, Feb. 1, 1947, p. 335) for treating patients with advanced cancer at home has been so successful that the New York City Cancer Committee has decided to allot $50,000 to the project. The program has been carried on by Montefiore Hospital. In the first year 1,540 medical calls were made. Social service workers and other specialists from the hospital staff and members of the Visiting Nurse Service of New York called on patients regularly.

Measles Epidemic.--According to newspaper reports, the incidence of measles is still rising in the city with 1,464 new cases reported for the week March 21-27. Since January 1 the health department has distributed free to physicians 21,423 doses of gamma globulin, which is more than three times the amount distributed in a corresponding time in 1946. So far this year, 9,215 cases and 7 deaths have been reported.

The Cleveland Cancer Award.—Dr. Cornelius P. Rhoads, director, Memorial Hospital for the treatment of Cancer and Allied Diseases, received the Clement Cleveland Award of the New York City Cancer Committee April 4 for work in cancer control during 1947. The award was made at a dinner that opened the 1948 fund drive for the American Cancer Society, Inc. The hospital is one of the principal beneficiaries of the local committee.

Open Institute for Cancer Research.—The Sloan-Kettering Institute for Cancer Research at Memorial Hospital Center for Cancer and Allied Diseases will open April 16. Sir Henry H. Dale, F.R.S., will speak at 9:30 a.m. Representatives of universities, technology and government and layman will make up the panel to discuss medical research. At a dinner in the Waldorf-Astoria, 7:30 p.m., the speakers will be Sir Henry H. Dale, Charles F. Kettering, Sc. D., Dayton, Ohio, and Dr. C. P. Rhoads, New York. The cornerstone of the institute, the central unit of the $15,000,000 Memorial Cancer Center, was laid April 7, 1947 (THE JOURNAL, May 3, 1947, p. 90).

Report on Tuberculosis.—Dr. Harry S. Mustard reported March 9 that the city's 18,000 cases of tuberculosis included 7,700 new cases, of which 17 per cent were in the minimal stage and 48 per cent in the advanced stage. In an address at the joint conference of the New York Tuberculosis and Health Association and the Tuberculosis Sanitorium Conference of Greater New York, he said that $309,000 was needed for purchase of new equipment and facilities for detection of tuberculosis. There was reduction of 5 per cent in the death rate from tuberculosis in New York in 1947. Health department figures show that for the first time deaths from tuberculosis fell below 40 per hundred thousand population. The death rate in the boroughs ranged from 27.8 in Queens to 73.1 in Manhattan. The rate for the city was 39.6.

NORTH CAROLINA

Annual Meeting of State Society.—The annual meeting of the Medical Society of the State of North Carolina will be held May 3-5 at the Carolina Hotel, Pinehurst, under the presidency of Dr. James F. Robertson, Wilmington. Guest speakers at the general sessions include:

R. E. Lapp, Ph.D., Washington, D. C., Atomic Warfare and Medicine.
John deJ. Pemberton, Rochester, Minn., subject to be announced.
Russel L. Haden, Cleveland, Treatment of Anemia.
William F. Friedewald, Atlanta, Ga., Pathogenesis, Diagnosis and Treatment of the Acute Phase of Poliomyelitis.

Section meetings will be on surgery, practice of medicine, gynecology and obstetrics, public health and education, neurology and psychiatry, pediatrics, radiology, practice of medicine and surgery, and ophthalmology and otolaryngology. President's Night on Tuesday includes a banquet at 7 o'clock to be followed by the President's Ball. Various societies and alumni associations will hold luncheons.

OHIO

Scientific and Technical Periodicals.—A list of scientific and technical periodicals in the libraries of greater Cincinnati will be published in May. It will show the holdings of fifty-eight public and industrial libraries and will contain 3,200 titles and more than 10,000 separate entries. This guide to the periodical resources of this area, particularly in chemistry, medicine and engineering, is being brought out under the sponsorship of the Cincinnati Section of the American Chemical Society for $2.50 postpaid.

Dr. Starin to Retire.—William A. Starin, Ph.D., of the Ohio State University department of bacteriology will retire from active service at the end of this academic year after thirty-eight years of teaching at the university. Plans are being made by friends and former students for a dinner in Dr. Starin's honor on May 8 at the Neil House in Columbus, and all friends and former students are invited to attend. Reservations must be made by May 1. The William A. Starin Lectureship has been established through the Ohio State University Development Fund and will be administered by the department of bacteriology in consultation with the dean of the graduate school. Contributions for the fund should be made payable to the Ohio State University Development Fund and sent to Dr. Margaret D. Heise, department of bacteriology, Pharmacy and Bacteriology Building, Ohio State University, Columbus. Reservations should also be made with Dr. Heise.

TEXAS

Dr. Williams Named Secretary.—Dr. Harold M. Williams, Fort Worth, former assistant secretary-editor of the State Medical Association of Texas, on January 17 was named secretary by the board of trustees. The office of secretary-editor became vacant on the recent death of Dr. Holman Taylor.

Dedication at College of Medicine.—Baylor University College of Medicine will hold a scientific program at the opening of the Roy and Lillie Cullen Building April 22-24 in Houston. Among the speakers on April 22 will be Dr. Chauncy D. Leake, president, University of Texas Medical Branch, Galveston; Dr. Ernst W. Bertner; Dr. Alton Ochsner, Tulane University of Louisiana School of Medicine, New Orleans; Col. A.A. De Coursey, San Antonio; Dr. Albert H. Holland, medical advisor to the Oak Ridge (Tenn.) Project of the U. S. Atomic Energy Commission, and William Houston, Ph.D., president of Rice Institute, Houston. Dr. Morris Fishbein, Editor of THE JOURNAL, will speak at 8 p.m. on April 23. Friday's program will include the following speakers: Dr. Benjamin B. Wells, Houston, director of education and research of the M.D. Anderson Hospital for Cancer Research; Dr. Francis J. Braceland, Mayo Clinic, Rochester, Minn., and Dr. Edwin C. Hamblen, Duke University School of Medicine, Durham, N. C. Three of the speakers on Friday afternoon will be Dr. Rolla E. Dyer, director of the National Institute of Health and special lecturer of the George Washington University School of Medicine, Washington, D.C., who will discuss "Research in Medical Sciences;" Dr. Henry M. Winans, clinical professor of medicine, Southwestern Medical College, Dallas, "Epileptic Equivalents as Cause for Somatic Symptoms" and Dr. Benjamin M. Baker Jr., internist at Johns Hopkins University School of Medicine, Baltimore, who will close the scientific session Friday afternoon. The principal speaker at the formal dedication will be Kenneth C. Royall, Secretary of War, who will speak on "Medical Education and National Defense."

State Medical Association Meeting.—The annual meeting of the State Medical Association of Texas will be held in Houston April 26-29 with headquarters at the Rice Hotel. Innovations in the program are an active section on general practice and an evening meeting designed especially for the lay public. At the lay meeting the speakers will be:

Lowell S. Goin, Los Angeles, Medicine Men and Doctors.
Haven Emerson, New York, It's Health Roundup Time in Texas; presentation of Dallas Health Museum Award.

Out of state speakers at the general sessions include:

Leo G. Rigler, Minneapolis, Routine Roentgen Examination of Symptomless Persons.
Waltman Walters, Rochester, Minn., Cancer of the Stomach.
Andrew B. Rivers, Rochester, Minn., Perforating Peptic Ulcers.
George F. Lull, Chicago, Secretary and General Manager, American Medical Association, Medical Legislation.
Willard O. Thompson, Chicago, Endocrine Problems During Adolescence.
Ralph Luikart, Omaha, Reducing Fetal and Maternal Morbidity and Mortality by Controlled Nutrition During Pregnancy.
Frank H. Lahey, Boston, Management of Lesions of the Thyroid.
William L. Benedict, Rochester, Minn., Prevention of Blindness.
Jean V. Cooke, St. Louis, Leukemia in Children.
John A. Kolmer, Philadelphia, Synergistic or Additive Activity of Chemotherapeutic Compounds.
Wingate M. Johnson, Winston-Salem, N.C., Pancreatitis.

V 13
1948

Sectional programs will also be presented. The usual clinical luncheons, president's reception and ball, alumni and fraternity banquets, past-presidents' association luncheon and golf tournament have been arranged. Scientific motion picture and technical exhibits are provided as between meeting features. The Woman's Auxiliary will meet in conjunction with the association April 26-29 with headquarters at the Lamar Hotel. Seven other related organizations will hold annual meetings.

GENERAL

Gastroscopic Society Meeting.—The American Gastroscopic Society will hold its fourth annual meeting at the Hotel Claridge, Atlantic City, N.J., May 2 under the presidency of Dr. Herman J. Moersch, Rochester, Minn. Subjects of papers to be presented include gastric polyps, involvement of the stomach in malignant lymphoma and flexible tube esophagoscopy.

Phase Microscopy and its Photographic Application. The Chicago Chapter of the Biological Photographic Association will meet April 20 at 7:30 p.m. at the University of Illinois Hospitals, 1853 West Polk Street, Room 221. Dr. Oscar W. Richards, Ph. D., Buffalo research biologist, will lecture on phase microscopy and its photographic application, illustrated with motion pictures.

Fellowship Examinations.—The Board of Examiners of the American College of Chest Physicians announces that the next oral and written examinations for fellowship will be held at Chicago June 17, 1948. Candidates who would like to take the examinations for fellowship in the college should contact the Executive Secretary, American College of Ghest Physicians, 500 North Dearborn Street, Chicago 10.

Society for Psychosomatic Research.—The American Society for Research in Psychosomatic Problems will meet May 1-2 at Chalfonte-Haddon Hall, Atlantic City, N.J., under the presidency of Dr. Franz G. Alexander, Chicago. Halfday discussions will be devoted to psychosomatic aspects of genitourinary and gynecologic problems, psychosomatic problems of methodology in psychosomatic research and psychosomatic problems in diabetes.

Medical Relations in Business and Industry.—Wayne University School of Occupational Health will present its fifth series of Conferences on Medical Relations in Business and Industry on Wednesdays beginning April 28 and ending June 19. Conferences will open at 4:30 p.m., recess for dinner and reconvene at 7:15 p.m. Application for enrolment together with a check for $50 for the eight symposium-conferences should be mailed to the Dean of Wayne University School of Occupational Health, 1547 Penobscot Building, Detroit 26. The single conference fee is $10.

International Conference On Rheumatism. An International Scientific Conference on chronic degenerative rheumatism will be held June 24-27 at Aix-les-Bains, France, under the presidency of Professor Leriche. The conference will include titular members, who must be doctors of medicine or medical students, although the bureau reserves the right to accept all persons actively interested in hydrology and rheumatology; geologists, directors of spas, manufacturers of pharmaceutic products and others who furnish references. Communications should, if possible, be concerned with chronic degenerative rheumatism. Others are accepted at the discretion of the bureau. All correspondence should be addressed to Dr. Francon, 55 rue des Mathurins, Paris (8), who will accept advance registrations.

Medical History Meeting.—The twenty-first annual meeting of the American Association of the History of medicine will be held in Philadelphia May 26-27. All sessions (with the exception of the dinner) will take place at the College of Physicians. On Wednesday morning's program is a symposium on "Physician in the 18th Century." The Garrison Lecture will be delivered at 3 o'clock in the afternoon, and at 8 p.m. papers on the place of history in medical education will be submitted and discussed. In Thursday afternoon's general session, papers on miscellaneous subjects volunteered by members will be given. The dinner will be at 7 o'clock. Reservations should be made directly with Mr. Michael T. McGarry, Penn-Sheraton Hotel, referring in the letter to the meeting of the association.

Annual Dermatologic Meeting.—The annual meeting of the American Dermatological Association, Inc., will be held at the Hotel Del Coronado on Coronado Beach adjacent to San Diego April 26-29 under the presidency of Dr. J. Gardner Hopkins, New York. At an informal discussion scheduled for Monday at 2 p.m. new therapeutic ideas and diagnostic methods and other new suggestions will be presented and discussed. Among the subjects of papers to be read are: fleas in california, granular cell myoblastoma, eosinophylic granulomas of the skin, disseminate lupus erythematosus and seabathers' eruption. The Tuesday evening speaker will be Dr. Stafford Warren, dean and professor of biophysics, Medical School, University of California in Los Angeles, who will present "A Discussion of the Effects of Atomic Radiation on Human Tissues and Comments on Atomic Research." A recreational program has been arranged for late afternoon of each day.

National Heart Committee Formed. — The National Heart Committee, with headquarters in New York City, was recently formed to support pending legislation before Congress for the establishment of a National Heart Institute under the U. S. Public Health Service. Theodore R. Gamble, Washington, D.C., former assistant to the Secretary of the Treasury in charge of bond sales, is chairman. Among the sponsors of the National Heart Comare Drs. Charles A. R. Connor, New York, president; Arlie R. Barnes, Rochester, Minn.; T. Duckett Jones, Boston; Irving S. Wright, New York; David D. Rutstein, Albany, N.Y.; Paul D. White, Boston; Howard Rusk, New York; Harry Goldblatt, Cleveland, and Henry S. Simms, Ph.D., New York. According to the committee, less than $3,000,000 a year of public and private funds is being spent on research in diseases of the heart and circulation, while $3,000,000 a year of public funds is currently being spent on research and control of plant and animal diseases.

CANADA

Public Health Association Conference.—The Canadian Public Health Association will hold its thirty-sixth annual meeting in Vancouver, British Columbia, May 18-20. The meeting is being sponsored by the British Columbia Department of Health with the Washington State Public Health Association as co-host. Canadian and American public health workers and all medical and nursing personnel are invited to attend. Sectional meetings will deal with epidemiology, sanitation, industrial hygiene, public health nursing, public health education, public health administration, nutrition and venereal disease. Annual meetings of the Washington State Public Health Association, British Columbia Public Health Workers and the Canadian Institute of Sanitary Inspectors will be held the day preceding the conference.

136
948

Deaths

George Barclay Wallace ⊕ New York; born in Detroit in 1874; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1897; studied at the University of Vienna and the University of Strasbourg; for three years instructor in pharmacology at the University of Michigan; joined the faculty of New York University College of Medicine in 1902 as an instructor; four years later became professor and in 1942 chairman of the department of pharmacology, retiring on Aug. 31, 1946; for many years professor of pharmacology at the New York University College of Dentistry; member of the American Society of Clinical Investigation, and of many other scientific societies; past president of the American Society of Pharmacology and Experimental Therapeutics, the Harvey Society and the Society of Experimental Biology and Medicine; served during World War I; veteran of the Spanish-American War; chairman of the committee on pharmacology and drugs of the 1939 World's Fair; member of the Committee on Drug Addiction of the Bureau of Social Hygiene; served as attending physician at the Almshouse Hospital and the Workhouse Hospital; later assistant physician at Bellevue Hospital and on the consulting staffs of the Central Neurological and Harlem hospitals; in 1934 received the honorary master of arts degree from the University of Michigan and in 1941 the doctor of science degree from New York University; in 1925 elected president of the Medical Alumni Association of New York University; on the thirty-sixth anniversary of his active teaching service in New York University College of Medicine, friends, alumni and students presented a portrait of him to the college; served as managing editor of the *Journal of Pharmacology and Experimental Therapeutics;* died in Bellevue Hospital January 15, aged 73, of cerebral hemorrhage and arteriosclerosis.

Albert Horr Montgomery ⊕ Chicago; born in Chicago Sept. 8, 1882; Rush Medical College, Chicago, 1907; professor of surgery at the University of Illinois College of Medicine; formerly on the faculty of his alma mater; member of the founders group of the American Board of Surgery; member of the Institute of Medicine of Chicago, Chicago Surgical Society, American Surgical Association and the American Association for the Study of Trauma; served as president and secretary of the Western Surgical Association; an officer serving overseas during World War I; retired in 1946 as chief of the surgical department of Children's Memorial Hospital; served on the staffs of Cook County and Presbyterian hospitals; died January 31, aged 65, of coronary artery disease.

Charles D. Allison, Gardner, Ill.; Medical College of Indiana, Indianapolis, 1896; died January 21, aged 76, of cerebral hemorrhage.

George Atcheson, Denver; Denver College of Medicine, 1893; member of the American Medical Association; affiliated with St. Luke's Hospital; died January 7, aged 80, of heart disease.

Florence Widney Austin ⊕ Dallas, Texas; Southwestern University Medical College, Dallas, 1908; died January 8, aged 60, of cerebral thrombosis.

Karl Roland Bailet, Boston; College of Physicians and Surgeons, Boston, 1910; Tufts College Medical School, Boston, 1913; served during World Wars I and II; deputy health commissioner of Boston; died in the New England Baptist Hospital Dec. 21, 1947, aged 61, of carcinoma of the liver.

Crescent Frank Balmenti, Youngstown, Ohio; University of Virginia Department of Medicine, Charlottesville, 1947; interned at the University Hospitals in Cleveland; died recently, aged 25.

Charles W. Banks, Orangeville, Ohio; Cleveland Homeopathic Medical College, 1899; died Dec. 8, 1947, aged 75, of heart disease.

Herbert Octavius Black, Waco, Texas; Vanderbilt University School of Medicine, Nashville, Tenn., 1913; affiliated with the Veterans Administration; died in Hillcrest Hospital Dec. 19, 1947, aged 59, of heart disease.

Grace Mott Boswell, Cincinnati; Miami Medical College, Cincinnati, 1909; served on the staff of the Christ Hospital; died recently, aged 77, of arteriosclerosis.

Charles Lesley Boyers ⊕ Parkersburg, W. Va.; Maryland Medical College, Baltimore, 1900; affiliated with the Camden-Clark Memorial Hospital and St. Joseph's Hospital, where he died January 2, aged 70, of coronary occlusion.

Ronney Hunter Bridges, Shreveport, La.; Louisiana State University School of Medicine, New Orleans, 1944; interned at the Milwaukee County Hospital in Durham, N. C.; served in the medical corps of the U. S. Naval Reserve during World War II; died July 25, 1947, aged 26.

Robert Brittain ⊕ Downsville, N.Y.; Albany (N.Y.) Medical College, 1890; past president of the Delaware County Medical Society; village health officer; served during World War I, affiliated with the Margaretville (N.Y.) Hospital; died January 3, aged 80, of cerebral embolism.

William Cullen Bryant, Pittsburgh; Western Pennsylvania Medical College, Pittsburgh, 1894; specialist certified by the American Board of Urology, Inc.; member of the American Urological Association; served as a member of the state board of medical education and licensure; died Dec. 23, 1947, aged 76.

Luther Francis Bugg, Carnegie, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1902; died recently, aged 72.

J. S. Butler, Superior, Neb.; Western Reserve University Medical Department, Cleveland, 1883; died Dec. 11, 1947, aged 90.

William Francis Carmody, Worcester, Mass.; Harvard Medical School, Boston, 1909; died recently, aged 78, of arteriosclerotic heart disease.

Knowles K. Carr ⊕ Devers, Texas; Kansas City College of Medicine and Surgery, Kansas City, Mo., 1917; served during World War I; died in Dayton (Texas) Memorial Hospital Dec. 24, 1947, aged 67, of cardiac failure.

Everette Virgil Conley, Cleveland; University of Louisville (Ky.) Medical Department, 1916; found dead in a water-filled ditch near Louisa, Ky., January 3, aged 55.

Thomas Egner Cooper ⊕ Davis, Calif.; St. Louis University School of Medicine, 1914; died Dec. 26, 1947, age 57, of coronary disease.

Joseph Thomas Croteau, Chisholm, Maine; University of Montreal Faculty of Medicine, Montreal, Canada, 1907; member of the American Medical Association; died in a hospital at Lewiston Dec. 14, 1947, aged 67.

V 13
1948

Michael Francis Dean, Indianapolis; Indiana Medical College, School of Medicine of Purdue University, Indianapolis, 1907; member of the American Medical Association; died recently, aged 66, of coronary occlusion and diabetes mellitus.

Chertsey Hopkins DeJarnette, Staunton, Va.; Woman's Medical College of Pennsylvania, Philadelphia, 1894; served on the staff of the Western State Hospital; died Dec. 7, 1947, aged 79, of angina pectoris.

James E. Drane ⊕ Phoenix, Ariz.; University Medical College of Kansas City, Mo., 1896; affiliated with St. Monica's Hospital and Health Center, Good Samaritan Hospital and St. Joseph's Hospital, where he died Dec. 24, 1947, aged 75, of cerebral hemorrhage.

Urban Jacob Durner, Milwaukee; Marquette University School of Medicine, Milwaukee, 1913; member of the American Medical Association; served during World War I; affiliated with St. Joseph's Hospital, where he died Dec. 3, 1947, aged 57, of coronary occlusion.

Clifford S. Goodman ⊕ Chicago; University of Louisville (Ky.) Medical Department, 1912; served during World Wars I and II; died January 12, aged 56, of suffocation and burns received in a fire in his apartment.

Hugo Anton Engelhardt ⊕ Houston, Texas; Bellevue Hospital Medical College, New York, 1897; during World War II active in selective service work; on the courtesy staffs of St. Joseph's Infirmary, Methodist and Memorial hospitals; died recently, aged 73, of peritonitis.

John Nelson English, Gillespie, Ill.; Missouri Medical College, St. Louis, 1893; member of the American Medical Association; chairman of the board of directors of the Peoples State Bank; died in St. Francis Hospital, Litchfield, January 4, aged 81, of pneumonia.

Warren Dexter Fales, Silver Spring, Md.; Columbian University Medical Department, Washington, D.C., 1895; died in the Washington Sanitarium and Hospital in Takoma Park, January 18, aged 79, of arteriosclerosis.

Herman Albert Fasbender, Hastings, Minn.; University of Minnesota Medical School, Minneapolis, 1920; served as mayor; died in the Northwestern Hospital, Minneapolis, January 7, aged 53.

Ernest James Franklin ⊕ Indianapolis; Friedrich-Wilhelms-Universität Medizinische Fakultät, Berlin, Prussia, 1920; died Dec. 11, 1947, aged 54.

Herbert William Fudge ⊕ Elmira, N.Y.; Niagara University Medical Department, Buffalo, 1893; fellow of the American College of Surgeons; served on the staff of the Arnot-Ogden Memorial and St. Joseph's hospitals; died January 9, aged 78.

Ray Thomas Fuller ⊕ Kalamazoo, Mich.; Saginaw (Mich.) Valley Medical College, 1903; affiliated with the Borgess and Bronson Methodist hospitals; died January 7, aged 72, of chronic nephritis.

Daniel Ignatius Gallagher ⊕ Lakewood, Ohio; St. Louis University School of Medicine, 1924; affiliated with the Lakewood (Ohio) Hospital and St. John's Hospital in Cleveland; died January 8, aged 49, of coronary thrombosis.

Harriet M. Allen Heath, South Pasadena, Calif.; Chicago Homeopathic Medical College, 1884; died Dec. 2, 1947, aged 89.

William Daniel Heaton, New York; Rush Medical College, Chicago, 1913; served in the U. S. Public Health Service during and after World War I; medical director of the New York Life Insurance Company; died January 14, aged 58, of heart disease.

Thomas Clark Hill ⊕ Huntington, Utah; University of Colorado School of Medicine, Denver, 1908; an officer during World War I; served as city physician and health officer; died Dec. 30, 1947, aged 63, of heart disease.

Thomas Jefferson Iles, New York; Vanderbilt University School of Medicine, Nashville, Tenn.; 1898, died in St. Barnabas Hospital recently, aged 79.

Ludwig Koempel, Brooklyn; Long Island College Hospital, Brooklyn, 1899; member of the American Medical Association; affiliated with the Bethany Deaconess Hospital; died Dec. 31, 1947, aged 81, of coronary thrombosis.

Joseph Roscoe Latham, New Bern, N.C.; Jefferson Medical College of Philadelphia, 1917; served during War I; formerly affiliated with the U. S. Public Health Service; at one time county coroner and health officer; medical director of St. Luke's Hospital, where he died Dec. 29, 1947, aged 52.

John Kroulik, Nelsonville, Texas; University of Texas School of Medicine, Galveston, 1897; during World War I head of the county medical examining board for Selective Service; for many years a school trustee; president and director of the Industry State Bank; died in a hospital in Bellville Nov. 7, 1947, aged 75, of cerebral hemorrhage.

Thomas Adam Lawson, Dallastown, Pa.; Jefferson Medical College of Philadelphia, 1906; member of the American Medical Association; past president of the York County Medical Society; for many years director of the public schools in Dallastown; died Dec. 3, 1947, aged 68, of heart disease.

Lewis H. Long, Maysville, Ky.; Hospital College of Medicine, Louisville, 1894; member of the American Medical Association; president of the Mason County Medical Society; died January 9, aged 75.

Sergeant Price Martin, Kenmore, N.Y.; University of Pennsylvania School of Medicine, Philadelphia, 1921; member of the American Medical Association; at one time fellow in surgery at the Mayo Clinic in Rochester, Minn.; died January 8, aged 61.

Kirk Patrick Mason ⊕ Major, U. S. Army, retired; St. Petersburg, Fla.; Kansas Medical College, Medical Department of Washburn College, Topeka, 1907; served during World War I; entered the medical corps of the regular army in 1920 as a captain; retired Sept. 30, 1934 for disability in line of duty; died July 28, 1947, aged 68, of cerebral hemorrhage.

John Bernhard Meneke ⊕ Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1904; affiliated with the Lankenau Hospital; died January 18, aged 64, of cerebral thrombosis.

Marshall William Meyer ⊕ Madison, Wis.; Rush Medical College, Chicago, 1927; health commissioner of Madison since Nov 1, 1947; formerly district health officer with the state board of health, serving at Ashland and at Green Bay as venereal disease control officer for the state board of health; fellow of the American Public Health Association; received his M.P.H. degree from the University of Michigan in Ann Arbor; died January 22, aged 46, of heart disease.

Robert Otto Meyer, Minneapolis; Kaiser-Wilhelms-Universität Medizinische Fakultät, Strassburg, Germany, 1888; served as clinical associate professor in the department of obstetrics and gynecology at the University of Minnesota Medical School; died Dec. 12, 1947, aged 83.

Virgil Orin Muench ⊕ Nichols, Iowa; State University of Iowa College of Medicine, Iowa City, 1910; served during World War I; affiliated with Mercy Hospital in Iowa City, serving as chairman of the staff; vice president of the local bank; died January 3, aged 62, of heart disease.

Willis Grafton Neally, Montclair, N.J.; Dartmouth Medical School, Hanover, N.H., 1907; an organizer and first president of the Greater New York Hospital Association; member of the American Hospital Association, medical director of the Brooklyn Hospital from 1912 to 1946, when he became medical director emeritus; died in the Mountainside Hospital January 7, aged 65, of coronary occlusion.

Francis Power Parker, ⊕ Charlottesville, Va.; Emory University School of Medicine, Atlanta, 1931; served during World War II; member of the Medical Association of Georgia; on the faculty of the University of Virginia Department of Medicine; formerly on the faculty of his alma mater; died recently, aged 41, of heart disease

Frank Benjamin Parker, Roanoke, Va.; Hahnemann Medical College and Hospital of Philadelphia, 1904; died in the Lewis-Gale Hospital Dec. 14, 1947, aged 65, of carcinoma of the rectum

Horace Norton Parker ⊕ Trenton, N.J., University of Pennsylvania Department of Medicine, Philadelphia, 1907; urologist for the city bureau of health, died January 4, aged 64, of coronary occlusion

John Wilson Parker, Columbus, Ohio; Chicago Homeopathic Medical College, 1899; formerly health officer of London; died Dec. 28, 1947, aged 71.

Harold Darby Parks ⊕ Lieutenant Colonel, M.C., U. S. Army, Lancaster, Texas; Jefferson Medical College of Philadelphia, 1931; interned at the Army Station Hospital, Fort Sam Houston; served during World War II; killed in an airplane crash in the jungles of Peru October 10, 1947, aged 39.

William Henry Probert, Berkeley, Calif.; Washington University School of Medicine, St. Louis, 1921; member of the American Medical Association; at one time associate professor of pathology at the New York Homeopathic Medical College and Flower Hospital in New York; served during World War II; died January 12, aged 54, of coronary occlusion.

Samuel Brown Pulliam ⊕ Paducah, Ky.; Chicago Homeopathic Medical College, 1902; for many years city commissioner, served during World War I; affiliated with the Riverside Hospital; died January 8, aged 78, of heart disease

William Henry Remer, La Crosse, Wis.; Chicago Homeopathic Medical School, 1904; member of the American Medical Association; past president of the Vernon County Medical Society; served during World War I; affiliated with St. Francis and La Crosse hospitals; for many years president of the Chaseburg State Bank in Chaseburg; died Dec. 21, 1947, aged 70, of rheumatic heart disease.

Philip Lee Ring, Bellaire, Ohio; Cleveland Homeopathic Medical College, 1905; died January 2, aged 75, of Parkinson's disease.

John Turner Rose, Vineland, N. J.; Baltimore Medical College, 1894; died in the Ivy Hall Sanitarium, Bridgeton, Dec. 17, 1947, aged 78, of cerebral hemorrhage and arteriosclerosis.

Eugene Paul Schaefer ⊕ Irvington, N. J.; Columbia University College of Physicians and Surgeons, New York, 1905; affiliated with the Irvington General Hospital, where he died Dec. 5, 1947, aged 66, of coronary occlusion.

Robert Felix Schanz ⊕ Rochester, N. Y.; University of Michigan Medical School, Ann Arbor, 1915; specialist certified by the American Board of Urology; member of the American Urological Association; served during World War I; affiliated with St. Mary's Hospital; died Dec. 30, 1947, aged 56, of Hodgkin's disease.

Benjamin Schnee, South Sioux City, Neb.; University of St. Andrews Conjoint Medical School, St. Andrews and Dundee, Scotland, 1935; city health officer; received the Bronze Star and Purple Heart decorations for service during World War II; affiliated with St. Vincent's Hospital and the Lutheran Hospital in Sioux City, Iowa; died Dec. 24, 1947, aged 37, of coronary thrombosis.

Otto W. Shelksohn, Dorrance, Kan.; Baltimore University School of Medicine, 1894; died in the Ellsworth (Kan.) Hospital Dec. 28, 1947, aged 77, of cerebral hemorrhage.

Mahlon Cross Smalley, Gladstone, N. J.; University of Pennsylvania Department of Medicine, Philadelphia, 1897; died Dec. 11, 1947, aged 80, of cerebral hemorrhage and arteriosclerosis.

Jeff D. Smith, Violet Hill, Ark.; Memphis (Tenn.) Hospital Medical College, 1895; died in the Craig Hospital, Batesville, Dec. 31, 1947, aged 80, of bronchopneumonia

R. E. Lee Steiner, Salem, Ore.; Willamette University Medical Department, Salem, 1898; member of the American Medical Association; in 1937 resigned as superintendent of the Oregon State Hospital after thirty years of service; died Dec. 20, 1947, aged 78.

Edgar Blaine Stonesifer ⊕ Williamsburg, Ky.; Lincoln Memorial University Medical Department, Knoxville, Tenn., 1914; served on the county health department; local surgeon for the Louisville and Nashville Railroad; died in the Norton Memorial Infirmary, Louisville, Dec. 27, 1947, aged 62, of heart disease.

Daniel Joseph Sullivan ⊕ Manchester, N.H.; Tufts College Medical School, Boston, 1916; fellow of the American College of Surgeons; died Dec. 16, 1947, aged 56.

Bruce Stevens Weaver ⊕ Stamford, Conn.; University of Michigan Medical School, Ann Arbor, 1910; specialist certified by the American Board of Pathology, Inc.; member of the American Society of Clinical Pathologists; served on the staffs of St. Joseph's Hospital and the Stamford Hospital, where he died January 8, aged 65.

Gilbert B. Wimberley, Reform, Ala.; Medical College of Alabama, Mobile, 1892; member of the American Medical Association; past president of the Pickens County Medical Society; county commissioner of revenue; died in Tuscaloosa Dec. 13, 1947, aged 78, of cerebral hemorrhage.

George Irvin Yearick ⊕ Pittsburgh; Medico-Chirurgical College of Philadelphia, 1903; member of the American Psychiatric Association; served during World War I; resident physician at the Municipal Hospital, where he died Dec. 29, 1947, aged 77, of cerebral arteriosclerosis.

V 13(
1948

Foreign Letters

LONDON

(From Our Regular Correspondent)

March 22, 1948.

Therapeutic Social Clubs for Mental Patients

In order to promote the formation of therapeutic clubs for patients both in and out of mental hospitals a meeting was organized in London by the Institute of Social Psychiatry. Dr. J. Bierer, director of the institute, said that the experience of social clubs now extended over nine years. In their establishment many problems had to be faced: how to provide freedom of action and self government, including the mixing of the sexes, with existing regulations, traditions and responsibilities. If patients were put in charge, there was the risk that an aggressive patient might take possession of the club and misuse it for the exploitation of his aggressive instincts. On the other hand, if a psychiatrist or nurse were in complete charge, the patients would feel that they had no say in the matter. The best solution was to let the patients have charge of the club, members of the nursing and other staff to attend by invitation, but to have honorary members, including the medical superintendent, the matron and the psychiatrist. In a club of which he had experience a few marriages had taken place and proved suprisingly successful. Two friendships had to be interfered with in order that they might not develop into a more serious alliance; one concerned an epileptic person and the other a patient with multiple sclerosis. But in the majority of cases there was no reason to suppose that any harm would follow, either from the eugenic or human point of view. Conditions in the club approximated more or less to everyday life. The majority of the patients behaved more naturally in the club, which made it possible to use it for diagnostic purposes. A second club was established for chronic and deteriorated patients, and gave them some opportunity to exercise initiative.

Patients got so accustomed to active social life in the hospital that they missed it after discharge. This led to the formation of extramural clubs. This idea underwent a large extension when confronted with the great number of a social, solitary and retiring persons attending outpatient departments. In forming such clubs it was important to avoid any stigma; therefore the club premises were away from hospitals and the name of the club did not indicate its nature. In most of the clubs friends and relatives were also members. Some of these were potential patients, and thus the club was of assistance in prophylaxis.

Dr. Donald Blair, deputy superindendent of a mental hospital, thought that the maximum number of patients in a club should be between 40 and 50. It is important to have a nucleus of patients of reasonably high intelligence, and the regular attendance of a psychiatrist at club functions is important. These should include lectures, discussions, dances and dramatic performances.

New Hearing Aid to be Supplied Free Under National Health Service

True to its socialistic policy, the government is having manufactured a new hearing aid which will be supplied free to all persons with defective hearing. Most of the existing hearing aids use valves of American design and manufacture, and there has been difficulty in obtaining replacements. The government has now placed an order with the Mullard Wireless Service Company for 400,000 valves, and a similar number of "medresco" units are to be produced, together with 100,000 annual replacements, involving a total cost of $20,000,000 a year for the whole scheme. It is claimed that a remarkable advance in the British technic of manufacturing valves has enabled this country to enter a world market previously dominated by American manufacturers. The "medresco" unit is a wedge-shaped instrument with a maximum width at the top of 2 1/2 inches (6.35 cm.), reduced at the bottom to 1 1/2 inches (3.8 cm.). The overall length is 3 1/4 inches (8.26 cm.), and it is 1 inch (2.54 cm.) thick. The unit houses an amplifier using two valves which are less than 1/2 inch (1.27 cm.) in diameter. On the other hand, the manufacturers of commercial hearing aids have, through their association, issued a manifesto claiming that the government hearing aid already is obsolete, as they have produced better types of hearing aids.

OSLO

(From Our Regular Correspondent)

March 10, 1948.

Venereal Disease in the Army

When the Norwegian army sent a contingent in 1947 to Germany, the prospect of extensive infection of the young Norwegians with venereal disease renewed an old problem. Were the military authorities to put preventives at the free disposal of all who intended to expose themselves to infection? To do so would raise the outcry that the authorities were condoning and actually conniving at immorality. But a *laisser faire* policy offered no attractive alternative, and in the end preventives won the day. Whereupon there was a storm of protest in the press at home, and the clergy and other influential members of the community invited every one to join in a protest against the new order. Counter protests followed, and at least one important women's organization joined in them. The Norwegian Storting, or Parliament, is to be bombarded by protests signed by thousands of signatories who look at the problem exclusively from the ethical aspect and who hope that the army authorities will be instructed to dissociate themselves from any patronage of preventives.

Dr. K. Grette, of the Norwegian Army Medical Service, reports that in the seven month period February to August 1947, 54 cases of syphilis, 154 of gonnorrhea and 9 of ulcus mollecutis were observed in the Norwegian contingent in Germany. The incidence of syphilis in this contingent was 13.5 per thousand, whereas it was only 2.1 per thousand in the army at home. The same remarkable difference was observed with regard to gonorrhea, for which the figures were 38.3 and 9.8 per thousand respectively. In about 25 per cent of the cases of venereal disease the names and addresses of the persons who infected the soldiers were reported, whereas at home some 60 per cent of the sources of infection were reported. Of 113 soldiers answering questions about the use of preventives, 99 said they had not used condoms, whereas 14 had done so. The rate of infection was much higher among the Norwegian soldiers enjoying a holiday in Holland, Belgium or Denmark than among those on duty in Germany.

Correspondence

AN INTERNATIONAL SCHOOL OF MEDICINE

To the Editor:—I note with interest the letter from Dr. Merl G. Colvin in The Journal, February 21, in which he proposes the establishment of an International School of Medicine. The problem of our responsibility and opportunity in meeting the needs of the foreign countries interest me greatly. The role of medicine and the health sciences is an extremely important one in the concept of present world affairs. The war has left us with a responsibility and an opportunity formerly expected of Europe, and, as Dr. Colvin's letter implies, this small world's health vitally affects our own health and economy. Too often in the past, however, foreign students whose countries present a different economic and social picture from ours have been sent to our schools, which of necessity educate and train men for situations as they exist in this country. Many have returned to their own countries, where they are often discontented or frustrated in the attempt to apply American plan. Others have failed to return to their countries.

The present needs of our own country and the enormous number of native applicants for the study of medicine finds most medical schools in a helpless position; nor are the schools adequately equipped in budget and facilities to encourage any increased registration, native or foreign. In the postdoctorate (residency) program we have a professional (not a medical school) training for specialization in this country. Like the undergraduate curriculum, this too has far too many applicants from our own country. There would be no great benefit to foreign countries if such opportunity were given their students. The problem of visas, subsidy and transcripts is a headache to any school which attempts or encourages opportunity for foreign students at any level. The time may come when individual schools may elect one area of foreign need and become better acquainted with those needs by visits of faculty members on leave. Nevertheless, it is apparent to me that this is no adequate solution to the whole problem.

It would appear to me that a separate school, not bound by too strict an interpretation of prerequisites but allowing variations and flexibility, would be worth considering. It is conceivable that some foreign students would be better served by a program somewhat similar to that of the Central Medical School of Fiji. Primarily for the native needs in the South Pacific Islands, outstanding young men of the various tribes are selected by this school for a two year course in which their native taboos, beliefs and customs are not forgotten. Phenomenal good to the tribe results in the return of these young men to take up the methods adapted to their environment. Hygiene, sanitation, recognition and treatment of certain diseases and minor surgery are remarkably handled. I fear the imposition of a strictly American medical education would be inappropriate and disastrous. There should be recognition of grades of needs and intensities of training, varying with the native background. To fit them for the practice of medicine in these United States would seem by comparison a costly waste and, at present, an impossibility.

FRANCIS SCOTT SMYTH, M.D.
California.

FACTORS AFFECTING NEED FOR PHYSICIANS

To the Editor:—The editorial in THE JOURNAL February 28, p. 6267, "Is There a Shortage of Physicians?" answers the "wolf cry" of the government well. The editorial did not consider a few important factors. Most important, after estimating the birth rates and death rates for the future as well as the number of graduates in medicine, will be the extra time necessary with each patient in using new methods to do a fine grade of work as well as in heading off malpractice suits. And as new discoveries are made, how many more new specialities there will be.

A good example of the latter is allergy. The specialists are needed, but it is just that many more physicians removed from the field of general practice. American physicians are doing good work. Now, as the thoroughness of the work improves in such matters as better history taking, more thorough examinations and more laboratory aids, the more time it takes for each patient. That may be the reason for the apparent shortage of physicians. That is one reason why the ratio of physicians per thousand population must increase, but not at the expense of poor training.

People are better informed and demand better medicine. The economic level in this country is high. Many cases of hernia, varicose veins, blemishes and a few hundred other pathologic conditions are receiving attention that would be neglected if finances were at a low level.

J. W. ROBINSON, M.D.,
Los Angeles.

ASPHYXIA OF THE NEWBORN

To the Editor:—May I comment on the query on page 358 of THE JOURNAL, January 31, "Asphyxia of the Newborn?" Predelivery oxygen administered to the mother is probably only effective if administered for fifteen to thirty minutes prior to delivery and discontinued as the presenting part passes the perineum. Observation indicates that uterine contraction which diminishes the area of placentation decidedly reduces the interchange of blood gasses. Such change in the size of placentation naturally results when there is decrease in the contents of the uterine cavity. I agree that respiratory movements precede delivery.

Unpublished studies in 1931 and 1932 indicated that the oxygen content of fetal cord venous blood at the instant of delivery average from 1.5 to 2.4 mg., per hundred cubic centimeters, and in a occasional case the oxygen content was even lower. The carbon dioxide content was 15 to 18 mg. Therefore predelivery oxygen to the mother is necessary so that the cells of the respiratory center will be oxygenated enough to be able to respond to the stimulus of increased carbon dioxide tension. Such increased carbon dioxide tension will work properly on a newly oxygenated cell and continue the respiratory movements initiated during intrauterine life.

I agree that heavy analgesia and anesthesia depress intrauterine respiratory activity and, if still present in the postdelivery circulation, depress extrauterine respiratory activity. Therefore, all of the preceding premise is based on the use of analgesia and anesthesia which is controlled to an optimum point of success without damage.

LOWELL F. BUSHNELL, M.D.,
Los Angeles.

V 13(
1948

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

NATIONAL BOARD OF MEDICAL EXAMINERS EXAMINING BOARDS IN SPECIALTIES

Examinations of the National Board of Medical Examiners and the Examining Boards in Specialties were published in THE JOURNAL, March 27, page 896.

BOARDS OF MEDICAL EXAMINERS

ALABAMA: Examination. Montgomery, June 22-24, 1948. Sec., Dr. D. G. Gill, 519 Dexter Ave., Montgomery 4.

ARIZONA:* Examination. Phoenix, April 6-7. Endorsement. Phoenix, April 19, Sec., Dr. J. H. Patterson, 826 Security Bldg., Phoenix.

ARKANSAS:* Examination. Little Rock, June 3-4. Sec., Medical Board of the Arkansas Medical Society, Dr. L. J. Kosminsky, Texarkana. Eclectic: Little Rock, June 3. Sec., Dr. C. H. Young. 1415 Main St., Little Rock.

CALIFORNIA: Oral. San Francisco, June 5-6; Los Angeles, Aug. 7-8. Written Examination. San Francisco, June 7-10. Los Angeles, Aug. 9-12. Oral and Clinical Examination for Foreign Graduates. San Francisco, June 6. Sec., Dr. Frederick N. Scatena, 1020 N Street, Sacramento 14.

COLORADO:* Examination. Denver, June 21-23. Final date for filing application is June 5. Endorsement. Sec., Dr. J. B. Davis, 831 Republic Bldg., Denver.

DELAWARE: Examination. Dover, July 13. Endorsement. Dover, July 22. Sec., Dr. J. S. McDaniel, 229 S. State St., Dover.

FLORIDA:* Examination. Jacksonville, June 29-30. Sec., Dr. Harold D. Van Schaick, 6675 Windsor Lane, La Gorce Island, Miami Beach 41.

HAWAII: Examination. Honolulu, July 12-15. Sec., Dr. S. Doolittle, 881. S. Hotel St., Honolulu.

IDAHO: Boise, July 13-15. Sec., Bureau of Occupational Licenses, Miss Estella S. Mulliner, 355 State House, Boise.

ILLINOIS: Chicago, April 6-8. Supt., Dept. of Registration and Education, Mr. Fred W. Buegg, Springfield.

INDIANA: Examination. Indianapolis, June 1948. Sec., Board of Medical Registration and Examination, Dr. Paul R. Tindall, K of P Bldg., Indianapolis.

KANSAS: Kansas City, June 9-10. Sec., Board of Medical Registration & Examination, Dr. J. F. Hassig, 905 N. 7th St., Kansas City.

KENTUCKY: Examination. Louisville, June 16-18. Sec., Dr. P. E. Blackerby, 620 S. 3d St., Louisville.

MARYLAND: Medical Examination. Baltimore, June 15-18. Sec.-Treas., Dr. Lewis P. Gundry, 1215 Cathedral St. Baltimore. Homeopathic Examination. Baltimore, June 15-16. Sec., Dr. J.A. Evans 612 W. 49th St. Baltimore.

MINNESOTA:* Minneapolis, April 29-22. Sec., Dr. J. F. DuBois, 230 Lowry Medical Arts Bldg., St. Paul.

MISSISSIPPI: Jackson, June 1948. Asst. Sec., State Board of Health, Dr. R. N. Whitefield, Jackson.

MISSOURI: Examination. St. Louis, May 24-26. Final date for filing application is April 24. Exec. Sec., Mr. John A. Hailey, State Capitol Bldg., Jefferson City.

MONTANA: Helena, April 5-7. Sec., Dr. O. G. Klein, First Nat'l Bank Bldg., Helena.

NEBRASKA:* Examination. Omaha, April 5-7. Dir., Mr. Oscar F Humble, Room 1009 State Capitol Bldg., Lincoln 9.

NEVADA: Carson City, May 3. Sec., Dr. G. H. Ross, 215 N. Carson St., Carson City.

NEW JERSEY: Examination, Trenton, June 15-17. Sec., Dr. E. S. Hallinger, 28 W. State St., Trenton.

NORTH CAROLINA: Endorsement. Pinehurst, May 4. Sec., Dr. Ivan Procter, 226 Hillsboro St., Raleigh.

NORTH DAKOTA: Grand Forks, July 6-9. Sec., Dr. G. M. Williamson, 4½ S. 3rd St., Grand Forks.

NEW YORK: Examination. Various Centers, June 28-July 1. Sec., Dr. J. L. Lochner, Education Bldg., Albany.

OHIO: Endorsement. Columbus, April 6. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus 15.

OKLAHOMA:* Oklahoma City, June 2-3. Sec., Dr. Clinton Gallaher, 813 Braniff Bldg., Oklahoma City.

OREGON:* Endorsement. Portland, May 7-8. Final date for filing application is April 23. Sec., Miss L. M. Conlee, 608 Failing Bldg., Portland.

PENNSYLVANIA: Examination. Philadelphia & Pittsburgh, July. Act. Sec., Bureau of Professional Licensing, Mrs. M. G. Steiner, 351 Educational Bldg., Harrisburg.

SOUTH CAROLINA: Written Examination. Columbia, June 21-23. Endorsement. April 5. Sec., Dr. N. B. Heyward, 1329 Blanding St., Columbia.

SOUTH DAKOTA:* Pierre, July 20-21. Sec., Dr. Gilbert Cottam Capitol Bldg., Pierre.

UTAH: Examination. Salt Lake City, June, 1948. Asst. Dir., Department of Registration, Miss Rena B. Loomis, 324 State Capitol Bldg., Salt Lake City.

VIRGINIA: Examination. Richmond, June 18-19. Endorsement. Richmond. June 17. Sec., Dr. K. D. Graves. 306 Medical Arts Bldg., Roanoke.

WEST VIRGINIA: Charleston, April 5-7. Comm., Public Health Council, Dr. N. H. Dyer, State Capitol Bldg., Charleston.

WISCONSIN:* Milwaukee, June 29-July 1. Sec., Dr. C. A. Dawson, Tremont Bldg., River Falls.

WYOMING: Examination. Cheyenne, June 7. Sec., Dr. G. M. Anderson, Capitol Bldg., Cheyenne.

* Basic Science Certificate required.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

ARKANSAS: Little Rock, May 4. Sec., Mr. L. E. Gebauer, 1002 Donaghey Bldg., Little Rock.

COLORADO: Examination. Denver, June 2-3. Sec., Dr. E. B. Starks, 1459 Odgen St., Denver.

CONNECTICUT: Examination. June 12., Exec. Asst., Mr. W. G. Reynolds, 110 Whitney Ave. New Haven 10.

DISTRICT OF COLUMBIA: Examination. Washington, April 19-20. Sec. Dr. G. C. Ruhland, 4130 Municipal Bldg., Washington.

FLORIDA: Examination. June 5. Final date for filing application is May 23. Sec., Mr. M. W. Emmel, Univ. of Florida, Gainesville.

IOWA: Des Moines, April 13, Oct. 12. Sec., Dr. Ben H. Peterson, Coe College, Cedar Rapids.

MICHIGAN: Examination. Ann Arbor and Detroit, May 14-15. Sec., Miss Eloise LeBeau, 101 N. Walnut St., Lansing 15.

MINNESOTA: Examination. Minneapolis, April 6-7. Sec., Dr. Raymond N. Bieter, 105 Millard Hall, Univ. of Minnesota, Minneapolis.

NEBRASKA: Examination. Omaha, May 4-5. Dir., Bureau of Examining Boards, Mr. Oscar F. Humble, Room 1009 State Capitol Bldg., Lincoln 9.

OREGON: Examination. Portland, June 19. Sec., Basic Science Examining Committee, Mr. C. D. Byrne, Univ. of Oregon, Eugene.

SOUTH DAKOTA: Examination. Vermillion, June 4-5. Sec., Dr. G. M. Evans, 310 F. 15th St., Yankton.

WISCONSIN: Examination. Madison, April 3. Sec., Dr. W. H. Barber, Scott & Watson Sts., Hipon.

Medical Motion Pictures

FILM REVIEWS

Observations on Hepatitis. 16 mm., black and white, sound, 1,200 feet (one reel), showing time thirty minutes. Prepared in 1946 by Joseph Stokes Jr., M.D., professor of pediatrics, University of Pennsylvania, Philadelphia. Produced by and procurable on loan from Mead Johnson & Company, Evansville, Ind.

This is a lecture film in which numerous charts are used in illustration. The film concerns largely an epidemic of infectious hepatitis in a Jewish children's camp near Philadelphia. Careful studies were conducted on the epidemiology of the illness. The causative agent was isolated and studied. This film is suitable for showing to physicians interested primarily in public health, pediatricians, internists and medical students.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Revocation of License for Gross Immorality in Connection with Diabetes Treatment.—In a proceeding before the state board of medical registration and examination the respondent's license to practice medicine was revoked, but on appeal to the circuit court the revocation was set aside. The board therefore appealed to the Supreme Court of Indiana. The petition seeking revocation of the respondent's license was based solely on the ground that respondent was guilty of "gross immorality" in the practice of medicine and, said the Supreme Court, the only question before the circuit court was therefore whether or not the decision of the board was based on "a substantial factual foundation."

The respondent was admitted to practice medicine, surgery and obstetrics in the state of Indiana in 1897 and for one year prior to October 6, 1946, he maintained his office, designated at times as a diabetic institute, in South Whitley, Ind. During this period this office had at least 100 patients a day, and there were over sixty rooming houses in South Whitley taking care of these patients. In October 1945 the respondent and his brother practiced at that office. They made representations to patients that they could cure diabetes and on at least one occasion made such representations to an admitted diabetic person who had been suffering from the disease for at least six years. They also told her that she could eat about anything and gave her a diet sheet which stated that most anything that has been made with sugar that has been thoroughly cooked is beneficial to one suffering from this disease. A pamphlet distributed at the institute, and prepared by the respondent's brother, who was associated with him, disclosed that they were doing business under the name of "Kaadt Diabetic Institute." This pamphlet contained a foreword wherein it was stated that there was real hope for the diabetic person through their method of treatment; that the principal method of treatment employed was an internal medicine taken by mouth; that in a majority of cases the patient resumes a normal diet within two or three weeks after beginning the treatment, and that in a large number of cases recovery had occurred. Patients were advised to attend the institute for three days, for which there was a charge of $30.00 including board; on leaving they were given a three months' medical treatment to take home with them, for which there was a charge of $30.00. The medicine which was to be taken home consisted of 1 gallon of liquid in a glass container, the liquid consisting of vinegar to which had been added potassium nitrate, some pepsin and takadiastase. The wholesale cost of this liquid medicine was 93 cents per gallon. In addition the patient was given a box of cathartic and digestive pills to take during his home treatmert.

The board's evidence showed that the respondent prescribed for patients without any physical examination and that he prescribed and gave medicine for diabetes to persons who were free from that disease. In no case was the necessary blood test made for sugar before prescribing for patients. Insulin and diet are the only known and accepted methods of treatment for diabetes; there is no oral treatment recognized by the medical world; removing patients suffering from this disease from insulin is dangerous and may be fatal. The consumption of sugar by a diabetic person is injurious to him, and the fact that sugar has been cooked does not render it harmless. The treatment adopted by the respondent is not approved by any other person in the profession. There have been no clinical tests or experimental stage in the development of this medicine; the treatment and medicine prescribed by the respondent is of no benefit to diabetic persons. The giving of the same has at times injured the patients, and some have died from its effect.

In order for the foregoing evidence to establish gross immorality, said the Supreme Court, we must conclude that it is sufficient to support the inference that the practice complained of was not an honest effort to relieve suffering but was a scheme for unjust enrichment. The important question is what the respondent knew to be the facts. If the treatment was not a cure or a proper remedy for diabetes, and he knew this to be a fact, then he was guilty of a scheme to defraud. It has been said, the Supreme Court continued: "That false and fraudulent representations may be made with respect to the curative effect of substances is obvious, It is said that the owner has the right to give his views regarding the effect of his drugs. But state of mind is itself a fact, and may be a material fact, and false and fraudulent representations may be made about it; and persons who make or deal in substances or compositions alleged to be curative are in a position to have superior knowledge, and may be held to good faith in their statements. It cannot be said, for example, that one who should put inert matter or a worthless composition in the channels of trade, labeled or described in an accompanying circular as a cure for disease, when he knows it is not, is beyond the reach of the lawmaking power."

The respondent contended that to empower the board to pass on his good faith would have a crippling effect on advances in medicine science, as it would prevent the use of new remedies. With this we cannot agree, said the Supreme Court. A physician is not limited to the most generally used of several approved modes of treatment, and the use of another mode known and approved by the profession is proper, but every new method of treatment should pass through an experimental stage in its development, and a physician is not permitted to make untested experiments on patients.

In conclusion the Supreme Court noted that the respondent was a man of broad professional experience, sufficiently educated in his profession. The board was therefore justified in not attributing the acts complained of to mistake arising out of inexperience or lack of knowledge. Accordingly, the Supreme Court was of the opinion that there was sufficient competent evidence in the record to support the finding of the board, and the board's order revoking the respondent's license was therefore sustained.—Board of Medical Registration and Examination of Indiana v. Kaadt, 76 N. E. (2nd) 669 (Ind., 1948).

V 13
1948

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1936 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied with stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted.

American J. Digestive Diseases, Fort Wayne, Ind.

14:381-412 (Dec.) 1947

*Gastric Secretory Studies with Mucin Antacid Mixture. E. M. Kammerling and F. Steigmann.—p. 381.
Ulcerative Colitis: Evaluation of Etiology, Symptomatology and Therapy. M. Kirsben.—p. 384.
*Consideration for Surgery in Ulcerative Colitis. R. R. Best.—p. 388.
Comments on Laboratory Diagnosis of Enteric Infections. O. Felsenfeld and Viola M. Young.—p. 392.
Appetite and Overeating in Their Relation to Obesity. J. Bauer.—p. 397.
Use of Non-Nutritive Materials to Satisfy Hunger. F. Hoelzel.—p. 401.

Gastric Secretion with a Mucin Antacid Mixture.—A new antacid consisting of a mixture of mucin, aluminum hydroxide and magnesium trisilicate has been compared by Kammerling and Steigmann with other currently used antacids concerning its effect on gastric acidity. The mixture appeared to decrease acidity in a higher percentage of cases, and this antacid effect seemed to last longer than with other substances. There seemed to be less rebound of the acidity with this substance. It is palatable, easily taken and has a better antacid effect when chewed carefully before swallowing it.

Surgery in Ulcerative Colitis.—Best believes that the treatment for ulcerative colitis is primarily medical, and that about 90 per cent of the cases will respond to it to a greater or lesser degree. He reviews the dietetic management, the measures directed toward minimizing intestinal spasm, the use of sulfonamide drugs, blood transfusions and psychsomatic factors. Appendicostomy and cecostomy are to be condemned. Colostomy of the transverse colon is justified in the infrequent segmental ulcerative colitis involving the left side of the colon. Ileosigmoidostomy is seldom justified, as it is most unusual to find ulcerative colitis involving only the proximal colon and leaving the rectum and sigmoid free from invasion. In only one of th author's cases did ileosigmoidostomy seem indicated, and to date, at the two year period, the result appears quite satisfactory. The author has seen 2 patients, who were subjected to primary ileosigmoidostomy by other surgeons when th rectum was apparently free of the disease, in whom there developed a severe ulcerative proctitis within a few months. Ileostomy is the procedure usually indicated. The type and position of the ileostomy stoma are important. The loop ileostomy should be used only in extreme emergencies. The end type ileostomy is preferable. In a recent check of 71 consecutive cases of ulcerative colitis only 9 patients were subjected to surgical intervention. Eight of these were given ileostomies. Two emergency ileostomies were performed, of which 1 was fatal. The 6 patients with elective ileostomies recovered. The ninth patient to undergo operation recovered following an ileosigmoidostomy. Among the 63 patients not operated on there were 2 deaths. There is not sufficient evidence that early ileostomy in ulcerative colitis will result in permanent cure of the disease. The author is of the opinion that it is far better to have a few patients arrive too late for surgery than to subject too many to unnecessary surgery, which to be of value is rather mutilating and usually leaves the patient with a permanent ileostomy.

American Journal of Medical Sciences, Philadelphia

214:585-712 (Dec.) 1947

Method of Determining Site of Retention of Aerosols Within Respiratory Tract of Man by Use of Radioactive Sodium: Preliminary Report. T. R. Talbot Jr., Edith H. Quimby and A. L. Barach.—p. 585.
Meningococcemia Without Meningitis: Review of 5 cases. L. L. Terry and C. W. Jones.—p. 593.
Studies in Epilepsy: Experimental Induction of Grand Mal Seizure During Hypnoidal State Induced by Sodium Amytal. W. Barker and S. Wolf.—p. 600.
Mental Deficiency of Prenatal Origin: Challenge to Preventive Medicine. P. Gruenwald.—p. 605.
Studies on Experimental Phosgene Poisoning: IV. Effect of "Pressure Breathing" on Pulmonary Edema of Phosgene Poisoning. R. D. Boche H. D. Bruner, T. R. Talbot Jr. and others.—p. 612.
Anatomy of Pancreatic Ducts: Etiology of Acute Pancreatitis. J. Howard and R. Jones.—p. 617.
Coronary Arteries of Infants. W. L. Minkowski.—p. 623.
Estrogens in Urine and Cytology of Vaginal Smears After Use of Estrogenic Cream. J. Eidelsberg.—p. 630.
Observations Concerning Influence of Potassium on Action of Digitalis Glycoside (Lanatoside C). M. Friedman and R. Bine Jr.—p. 635.
*Prolonged Hypercalcemia and Metastatic Calcification of Sclera Following Use of Vitamin D in Treatment of Rheumatoid Arthritis. J. W. Frost, F. W. Sunderman and I. S. Leopold.—p. 639.
*Tularemia Treated with Streptomycin. J. B. Johnson, C. B. Wilkinson and E. Figueras.—p. 645.
*Role of Liver in Renal Sulfonamide Complications. J. F. Kuzma and T. Z. Polley.—p. 651.
Tolerance to Intravenously Administered Protein Hydrolysate in Severe Human Liver Cirrhosis. Jessica H. Lewis, F. H. L. Taylor and C. S. Davidson.—p. 656.
Urinary Excretion of 3,5-Diethyl-2,4-Dioxotetrahydropyridine in Man. P. Polatin, E. Hirschberg, S. H. Rubin and L. A. Pirk.—p. 662.
Gastric Secretory Response in Hypoglycemia as Produced During Insulin Shock Therapy. C. H. Hiles.—p. 667.
Multiple Attacks of Meningitis: Report of Case with Autopsy. A. L. Hoyne and A. Schultz.—p. 673.
Clinical Applications of Bone Marrow Examinations in Childhood. I. J. Wolman and B. Diekstein.—p. 677.
Current Trends in Obstetric Analgesia. P. O. Klingensmith.—p. 688.

Metastatic Calcification of Sclera Following Use of Vitamin D.—Frost and his associates report the case of an elderly woman who five years prior to admission first noticed arthritic pains in her hands, shoulders, elbows and knees. Her physician placed her on treatment with a proprietary brand of vitamin D. She continued to take this preparation for a period of three and one-half years, taking an average dose of two and a half capsules daily (125,000 units). Studies on the calcium metabolism of this patient revealed that although vitamin D therapy had been discontinued eight months previously, hypercalcemia persisted and on a low intake of calcium a relatively high excretion of calcium was maintained in the urine. In addition there was evidence of diminution of renal function. Calcium deposits into the sclera and cornea were prominent features. These studies support the view that administration of large doses of vitamin D may have a prolonged effect lasting over a period of months.

Tularemia Treated with Streptomycin.—Johnson and his associates report on streptomycin therapy of 5 patients with tularemia. In each case the handling of wild rabbits was the source of infection. Two patients with the typhoidal type of the disease and 1 of the 3 with the ulceroglandular type were critically ill on admission. Systemic manifestations of the disease were promptly controlled, and the primary ulcer healed in less than half the usual time. Lymphadenopathy subsided promptly in a patient treated early but progressed to suppuration in another treated late. Neither intramuscular nor intraglandular injection of streptomycin in a patient with a suppurating node could obviate the need for adequate surgical drainage. **Streptomycin therapy does not alter the immunity response, since agglutination titers tend to rise as in untreated cases.**

Role of Liver in Renal Sulfonamide Complications.—Kuzma and Polley say that the role which liver plays in renal sulfonamide complications is emphasized by the frequency of such developments in chronic hepatic diseases and in instances of hepatic injury due to sulfonamide compounds. In a previous report 14 cases of renal sulfonamide complications were described and the hepatorenal relationship was considered. Since that time 5 additional fatal sulfonamide complications have been studied, making a total of 19. The incidence of hepatic disease as a background in renal sulfonamide complications is emphasized by the presence of hepatic damage in 6 cases of fatal nonobstructive sulfonamide nephrosis. Lesser hepatic lesions were found in 4 additional patients, 3 of them with sulfonamide lithiasis, making a total of 10 cases. The specific nature of the hepatic lesion is not as important as the fact of diffuse liver impairment and is not correlated with the seriousness of renal injury. Liver diseases of nutritional deficiencies

(notably portal cirrhosis) increase the likelihood of renal complications from sulfonamide therapy. Likewise, renal complications are more frequent when the liver is injured by the administered sulfonamide. Such findings should caution against the unwarranted administration of sulfonamide drugs to patients with chronic hepatic disorders and to those manifesting hypersensitivity phenomena.

American Journal of Ophthalmology, Cincinnati

31:1-136 (Jan.) 1948

Blood Supply of Optic Nerve and its Clinical Significance. D. Vail. —p. 1.
Study of Angle of Bifurcation of Retinal Vessels. C. W. Wasmund. —p. 12.
Mechanism of Production of Massive Preretinal Hemorrhage Following Rupture of Congenital Medial Defect Intracranial Aneurysm. A. J. Miller and J. T. Cuttino.—p. 15.
Significance of Base Pressure in Primary Glaucoma. A. B. Reese. —p. 25.
Reading Difficulty (Dyslexia) From Ophthalmic Point of View. G. E. Park.—p. 28.
Significance of Intracutaneous Test for Hypersensitivity to Uveal Pigment. S. D. McPherson Jr. and A. C. Woods.—p. 35.
Functional Home Exercises in Cases of Eyestrain. Marianne Eyles. —p. 45.
Vergence Test—Evaluation of Various Technics. W. H. Fink.—p. 49.
Intraocular Foreign Bodies in Soldiers. Helenor C. Wilder.—p. 57.
Surgical Correction of Paresis of Superior Oblique. W. P. McGuire. —p. 65.

American Journal of Surgery, New York

75:1-208 (Jan.) 1948

Rehabilitation of Veterans Paralyzed as Result of Injury to Spinal Cord and Cauda Equina. D. Munro.—p. 3.
Acute Abdominal Emergencies in Paraplegics. T. I. Hoen and I. S. Cooper.—p. 19.
Exophthalmos: Principles of Surgical Management From Neurosurgical Aspect. H. C. Naffziger.—p. 25.
Complications Accompanying Surgical Relief of Pain in Trigeminal Neuralgia. F. C. Grant.—p. 42.
Hypertension and Its Surgical Treatment by Bilateral Supradiaphragmatic Splanchnicectomy. M. M. Peet.—p. 48.
Tumors of Spinal Cord. W. McK. Craig.—p. 69.
Traumatic Intracranial Hemorrhage. E. S. Gurdjian and J. E. Webster. —p. 82.
Surgical Treatment of Tumors of Pituitary Body. L. M. Davidoff and E. H. Feiring.—p. 99.
Lateral Rupture of Cervical Intervertebral Disks: Incidence and Clinical Varieties. R. E. Semmes.—p. 137.
Ruptured Intervertebral Disks in Lower Lumbar Regions. R. G. Spurling and E. G. Grantham.—p. 140.
Ménière's Disease: Its Surgical Treatment by Division of Acoustic Nerve. B. S. Ray.—p. 159.
Abscess of Brain. E. F. Fincher.—p. 171.
Diagnosis of Intracranial Aneurysms. J. L. Poppen.—p. 178.
Intractable Pain Due to Cancer: Treatment by Neurosurgical Methods. O. R. Hyndman.—p. 187.
Surgical Treatment of Epilepsy. A. E. Walker and H. C. Johnson. —p. 200.
Fractures and Dislocations of Spine. W. G. Crutchfield and E. C. Schultz.—p. 219.
Prefrontal Lobotomy: Indications and Results in Schizophrenia. J. W. Watts and W. Freeman.—p. 227.
Congenital Anomalies of Neural Axis: Surgical Management Based on Embryologic Considerations. J. B. Campbell.—p. 231.
Cortical Extirpation in Treatment of Involuntary Movements. P. C. Bucy.—p. 257.
Section of Fibers of Anterior Limb of Internal Capsule in Parkinsonism. J. Browder.—p. 264.

Annals of Western Medicine & Surgery, Los Angeles

2:1-46 (Jan.) 1948

*Actinomycosis in Southern California: High Incidence of Thoracic or Pulmonary Actinomycosis. S. S. Robinson and S. Tasker.—p. 1.
Perforation of Gallbladder: Surgical Considerations and Management; Review of Recent Literature. P. A. Dressel.—p. 7.
Emotional Maturity. P. Solomon.—p. 12.
Acute Nasopharyngitis. H. J. Rubin.—p. 16.
Struma Ovarii. G. E. Norwood.—p. 19.
Anuria et Oliguria Reflectoria Treatment. A. Walfner.—p. 22.
Practical Approach to Case of Anemia. G. Carpenter.—p. 24.
Some Practical Considerations in Management of Fractures. A. S. Leven. —p. 27.

Actinomycosis in Southern California.—Robinson and Tasker present a statistical review of 24 cases of actinomycosis which were observed in Southern California. They gained the impression that actinomycosis in Southern California differs from the disease as reported in the Mississippi Valley and North Central region of the United States in the high incidence of thoracic or pulmonary involvment found in this locality. The diagnosis of pulmonary actinomycosis is difficult because the disease simulates other pulmonary disorders. Roentgen examination was found to be an important diagnostic aid in patients with pulmonary actinomycosis. The roentgenologic observations of involvement of the lower lobe of the lung, pleural thickening and erosion of the ribs and vertebrae proved to be highly suggestive of the disease. The high mortality rate in this series of patients with actinomycosis is due to the high incidence of thoracic or pulmonary involvement. Treatment with sulfonamide drugs and penicillin revealed no apparent superiority over older methods of therapy.

Archives of Neurology and Psychiatry, Chicago

58:533-652 (Nov.) 1947

*Activated Electroencephalography. I. C. Kaufman, C. Marshall and A. E. Walker.—p. 533.
Fatal Cryptogenic Neuropathy. S. Brock and C. Davison.—p. 550.
*Relation of Frontal Lobe to Autonomic Nervous System in Man. M. Rinkel, M. Greenblatt, G. P. Coon and H. C. Solomon.—p. 570.
Hyperhidrosis: Study of Case. Alice J. Palmer.—p. 582.
Spinal Extradural Cyst: Report of Case, with Particular Reference to Possible Diagnostic Aid. O. A. Turner.—p. 593.
Rehabilitation of Paraplegic Patient. E. W. Lowman.—p. 610.

Activated Electroencephalography.—Kaufman and his co-workers made an attempt to activate the epileptogenic focus in a series of 97 patients with post-traumatic epilepsy, by hyperventilation, hydration, electric shock, intravenous administration of alcohol and injection of trimethadione, penicillin, acetylcholine chloride, sodium cyanide and pentamethylenetetrazol ("metrazol" N. N. R.). Of these methods, injection of "metrazol" gave satisfactory focal activation in 43 patients (approximately 44 per cent) on the first test and in a much higher percentage on repeated testing. Intravenous administration was more effective than intramuscular injections. Clinical seizures occurred in 14 patients, but not when anticonvulsant drugs were given before the test. The electroencephalographic alterations induced with "metrazol" included focal slow waves, spikes or, somewhat less frequently, the rhythmic discharge of a seizure. The same alterations were less commonly recorded from all parts of the head. Activated electroencephalography appears to be a useful diagnostic aid in the understanding of the mechanisms involved in post-traumatic epilepsy.

Frontal Lobe and Nervous System.—Rinkel and his co-workers examined the autonomic nervous system in a series of 29 patients who had undergone prefrontal lobotomy and in a control group of 14 volunteer medical students and nurses and 52 hospital patients. The sympathetic nervous system was tested pharmacologically with intravenous injection of 0.05 mg. of epinephrine hydrochloride (1:1,000). The parasympathetic system was examined by means of stimulation of the carotid sinus reflex. The effects were recorded with the electrocardiograph and the electroencephalograph, and the clinical manifestations were carefully noted. The average increase in the systolic blood pressure resulting from the injection of epinephrine hydrochloride in patients with lobotomy was 81.5 mm. of mercury as compared with 42.4 mm. in the control group. The average rise in pulse pressure of patients before lobotomy on injection of epinephrine hydrochloride was 26.3 mm., and that of patients after lobotomy was 60.8 mm. On stimulation of the carotid sinus after lobotomy the incidence of a maximal cardiac reaction was about twice that for the control group. Subcortical section of the frontal lobes interferes with inhibitory and excitatory autonomic centers in the cortex, resulting in overreaction of the autonomic nervous system to direct stimulation. After frontal lobotomy autonomic equilibrium is eventually established at a new level and is brought about by readjustments of the autonomic system. The authors' results confirm other reports that cortical representations of the autonomic nervous system are located in the prefrontal area.

Archives of Ophthalmology, Chicago

38:735-872 (Dec.) 1947

Surgical Treatment of Syphilitic Primary Atrophy of Optic Nerves (Syphilitic Optochiasmatic Arachnoiditis): Clinicoanatomic Study. W. L. Bruetsch.—p. 735.
*Ocular Injury Due to Sulfur Dioxide: I. Report of 4 Cases. W. M. Grant.—p. 755.
Id.: II. Experimental Study and Comparison with Ocular Effects of Freezing. W. M. Grant.—p. 762.
Chronic Tearing Cured by Reestablishment of Normal Tear Conduction Passages. D. J. Morgenstern.—p. 775.
*Therapeutic Sulfadiazine Poisoning with Pemphigoid Lesions: Conjunctival Changes. B. Friedman.—p. 796.
Selenium Burn of Eye: Report of Case with Review of Literature. J. M. Middleton.—p. 806.
*Corneal and Conjunctival Pigmentation Among Workers Engaged in Manufacture of Hydroquinone. B. Anderson.—p. 812.

V 13
1948

Ocular Injury Due to Sulfur Dioxide.—Grant points out that sulfur dioxide in high concentration in the form of the liquefied gas is commonly used in domestic refrigerators and that accidental spraying of liquefied sulfur dioxide into the eyes of persons working on refrigeration machines has in some instances permanently reduced vision. The author reports 4 such cases in which there was immediate damage to the corneal epithelium, as in acid burns, with underlying stromal and endothelial injury, as in alkali burns. In the cases of mildest injury the outcome was complete recovery, while in the cases of severest damage dense opacification followed corneal infiltration and interstitial vascularization.

Sulfadiazine Poisoning.—According to Friedman, serious sulfadiazine poisoning is of three types: that in which the picture of agranulocytosis predominates, that which is associated with urinary suppression and that which presents widespread mucocutaneous pemphigoid lesions. The author observed 3 cases of the last type at a naval training center and found them of special ophthalmologic interest because of the characteristic conjunctival lesions which were exhibited. The conjunctival lesions in cases of sulfadiazine poisoning consist at first of large ulcerations, conjunctival thickening and formation of cysts, and of extensive scarring. The edges of the scars are frequently undermined. There are persistent thickening and inflammation of the unscarred epithelium. The initial ulcers heal. Later, small circular ulcers of the palpebral conjunctiva, with undermined epithelialized edges, apparently caused by rupture of some of the cysts, may appear and persist for well over half a year. Many of the cysts remain unruptured. Epitarsal membranes on both the upper and the lower lid are a part of this picture. Tearing may be caused by narrowing, distortion and eversion of the puncta. In differential diagnosis one must consider the ectodermosis erosiva pluriorificialis form of erythema multiforme, true pemphigus and measles. A history of ingestion of sulfadiazine is enough to predicate the diagnosis of therapeutic sulfadiazine poisoning; sulfadiazine crystals in the urine and the presence of sulfadiazine in the blood are confirmatory evidence. Treatment must be symptomatic. The general condition of the patient must be supported by blood transfusions, infusions of dextrose and administration of penicillin. The skin must be kept clean and protected. Bland eye washes and ointments help to relieve discomfort. Secondary conjunctivitis may be superimposed, and this is controlled with the usual antiseptic remedies. Large cysts should be excised. Eversion of the lids and stenosis of the puncta must be dealt with surgically.

Ocular Pigmentation Among Workers Manufacturing Hydroquinone.—Anderson presents observations on a group of workers employed in the manufacture of quinone and hydroquinone in whom certain characteristic lesions of the cornea and conjunctiva have developed. These lesions consist of (1) pigmentation of the interpalpebral portions of the conjunctiva and cornea and (2) corneal changes, which may be due in part to the corrosive action of the chemical but which, in view of its failure to stimulate inflammatory reaction, are more probably the result of migration or penetration of the chemical into the corneal structure. This takes place in the same manner as the invasion of the conjunctiva occurs, with a variation in response due to the peculiarities of the corneal structure. These changes consist in pitting and erosion of the corneal surface, thinning of the cornea, development of irregular pigmented or staining areas, wrinkling or modification of Descemet's membrane and possibly keratoconus. The changes are apparently reversible up to a certain point, in that conjunctival staining may disappear. The corneal stain is more permanent. The chemical is relatively harmless as far as its immediate effects can be determined. Prolonged exposure has produced corneal dystrophy and dyskeratosis and perhaps keratoconus. While the chemical is said not to belong to the carcinogenic group, the development of a frankly malignant growth is not beyond the bounds of probability.

Arkansas Medical Society Journal, Fort Smith

44:153-180 (Dec.) 1947

Urologic Pathology in the Making. T. L. Howard.—p. 153.
Discussion of Means of Diverting Urine. W. G. Cooper Jr. and G. W. Reagan.—p. 158.

Bulletin of New York Academy of Medicine, New York

23:673-726 (Dec.) 1947

Changing Medical Care in Our Changing National Life. E. A. Park.—p. 673.
Etiology of Benign Prostatic Hypertrophy. C. Huggins.—p. 696.
Diagnosis of Tetralogy of Fallot and Medical Aspects of Surgical Treatment. Helen B. Taussig.—p. 705.

24:1-70 (Jan.) 1948

Recent Advances in Treatment of Lymphomas, Leukemias and Allied Disorders. L. F. Craver.—p. 3.
Relation of Adrenals to Immunity. A. White.—p. 26.
Clinical and Experimental Studies on Adrenal Cortical Hyperfunction. L. J. Soffer.—p. 32.

Bull. of U. S. Army Med. Dept., Washington, D. C.

8:1-80 (Jan.) 1948

Army Medical Department Faces the Future. R. W. Bliss.—p. 31.
Army Hospitalization, Retrospect and Prospect. E. Ginzberg.—p. 38.
Nutrition Program in Germany: U. S. Zone of Occupation in Germany May 1945-May 1946. W. F. Ashe Jr.—p. 47.
Blood-Volume Determination. M. Mendlowitz.—p. 58.
*Bronchiectasis Following Atypical Pneumonia. B. F. Royce and R. G Victor.—p. 61.

Bronchiectasis Following Atypical Pneumonia.—Royce and Victor report 6 cases in which there is reason to believe that a single attack of atypical pneumonia resulted in a degree of demonstrable bronchiectasis. The criteria for selection of these cases were based on the typical roentgenographic and clinical observations of primary atypical pneumonia on admission, slow or incomplete resolution of pulmonary infiltration as determined by serial roentgenograms after adequate periods of treatment, persistence of productive cough, easy fatigue and inability to gain weight, negative history of previous respiratory episodes beyond an occasional common cold, and bronchography with iodized poppy seed oil 40 per cent showing bronchiectasis in one or more lobes. Bronchiectasis should be considered in cases of primary atypical pneumonia with prolonged cough and expectoration and persistence of pneumonic infiltrations on serial roentgenograms. Reversible bronchiectasis should be considered particularly in bronchograms showing a minimal extent and degree of bronchiectasis. A second bronchogram after a suitable interval is indicated in these cases as a guide to further therapy.

Gastroenterology, Baltimore

9:499-640 (Nov.) 1947

Fiftieth Anniversary of American Gastroenterological Association. F. W. White.—p. 499.
Some Observations on Bacterial Antagonism. H. Florey.—p. 516.
Personality Disorders in Gastroenterology: Analysis of 500 Cases. A. J. Sullivan and T. E. McKell.—p. 524.
Postwar Survey of Amebiasis and Other Intestinal Parasites. L. D. Snorf, E. E. Foltz and Betty Howard.—p. 539.
Salmonellosis: Experiences in Military and Civilian Practice. L. A. Smith.—p. 551.
Bacillary Dysentery and Ulcerative Colitis: Their Occurrence Among Military and Associated Personnel, World War II. J. Felsen and W. Wolarsky.—p. 557.
Salmonella—A Cause of Chronic Bacterial Dysentery. D. N. Silverman and A. Leslie.—p. 562.
Intralumen Pressures of Stomach and Duodenum in Health and Disease. D. A. Brody and J. P. Quigley.—p. 570.
Pharmacology of Sphincter of Oddi. M. Eisenstein and H. Necheles —p. 576.
Utilization of Parenteral Protein Hydrolysate in the Normal. C. J. Barborka, W. W. Carroll and Opal E. Hepler.—p. 579.
Inverse Relationship of Secretion of Hydrochloric Acid to Tension of Carbon Dioxide in Stomach. L. D. Kurtz and B. B. Clark.—p. 594.
Primary Carcinoma of Liver Arising in Left Lobe and Simulating Splenomegalia. J. A. Layne and E. Hildebrand.—p 603.
Henoch's Purpura: Case with Bullous Skin Lesions and Residual Scars. Roentgenologic Considerations. M. Kraemer.—p. 608.

Georgia Medical Association Journal, Atlanta

36:461-522 (Dec.) 1947

Eczema at Body Openings. H. Hailey.—p. 461.
Silicosis. T. J. Hicks.—p. 465.
Differential Diagnosis of Anterior Chest Pain. R. B. Logue.—p. 467.
*Rational Use of Iron, Folic Acid and Liver in Anemia. B. J. Hoffman and V. E. Powell.—p. 474.
Vaccinia Involving Eyelid: Report of Case. J. H. Pritchett Jr. and D. S. Reese.—p. 478.

Rational Treatment of Anemias.—Hoffman and Powell stress that greater emphasis must be given to accurate diagnosis before the institution of therapy against any type of anemia. Hypochromic anemia is the term applied to anemic states which are characterized by a deficiency in hemoglobin. This group comprises from 90 to 95 per cent of anemias seen in general practice. Low hemoglobin values, a color index well below 1 and microcytosis are the most important signs of hypochromic

anemia. Administration of iron is the most important part of the treatment of this type of anemia; 15 to 45 grains (0.97 to 2.91 Gm.) of ferrous sulfate are given daily in divided doses with or after meals. Liver therapy is not indicated and is a needless expense. Folic acid is ineffective. The macrocytic anemias, particularly pernicious anemia are characterized by large cells which are well filled with hemoglobin, have a color index over 1 and high cell indexes. Folic acid is as effective in producing and maintaining blood regeneration at satisfactory levels in macrocytic anemias as is liver extract. It does not, however, protect against degenerative changes in the central and peripheral nervous system which frequently develop in persons with addisonian pernicious anemia; nor does it reverse these neurologic changes once they have developed. Folic acid is indicated in macrocytic anemia accompanying or secondary to pregnancy, pellagra, hepatic disease or gastrointestinal disorders. Sprue and in particular nutritional and pernicious anemia require diagnostic differentiation, as folic acid alone is not sufficient in the latter.

Journal-Lancet, Minneapolis

67:427-464 (Dec.) 1947

Brain Tumors: Value of Early Diagnosis. A. W. Adson.—p. 427.
Surgical Relief of Pain. H. F. Buchstein.—p. 431.
Staphylococcus Pneumonia and Empyema. J. H. Benward.—p. 434.
Comparative Uses of Pentothal Sodium in Civilian and Military Practice. R. M. Tovell and C. M. Barbour.—p. 437.
Masochism in Medical Patient. A. Challman.—p. 444.
Observations on Treatment of Recurring Convulsions (Epilepsy) Occuring Among Children. H. M. Keith.—p. 449.
Glucuronic Acid Deficiency in Rheumatic Diseases. E. A. Peterman. —p. 451.

68:1-40 (Jan.) 1948

Physiologic Characteristics of Uterine Cancer in Relation to Radiation Therapy. J. F. Nolan.—p. 1.
Clinical Use of Antibiotics with Special Reference to Penicillin and Streptomycin. W. E. Herrell.—p. 6.
Visual Examination for School Children. J. DeWitt Schonwald.—p. 10.
*Lipomas of Large and Small Intestine: Clinical and Pathologic Study of 12 Cases Which Produced Symptoms Necessitating Surgical Intervention. R. J. Tenner.—p. 12.
Acute Bronchiolitis in Children. J. H. Benward.—p. 24.

Lipomas of Intestine.—Tenner reports 12 cases of lipomas of the large and small intestines, which produced symptoms and which were removed surgically. Lipomas occur more commonly in the large intestines. The average age at which they presented themselves by producing symptoms was 53 years in this series. Pain was the major symptom. Vomiting associated with pain was present in over half of the cases. Diarrhea and constipation was variable. There was weight loss in the majority of cases. Ulceration of the mucosa covering the lipomas was present in all but 1 case. This can be due to pressure injury as in intussusception or to trauma as in partial obstruction, or to infarction as from pressure on the blood vessels from the growth and development of the tumor. In spite of the incidence of ulceration blood was infrequently found in the stool. In many cases the preoperative diagnosis is that of a malignant neoplasm. This frequent error is due to the obstructive nature, the age of the patient and the loss of weight. Treatment is surgical. Local excision of the growth and direct closure or anastomosis is the ideal procedure when the lesion is not too extensive. Another procedure is a resection of the segment of bowel which contains the tumor.

Journal of National Malaria Society, Columbia, S. C.

6:219-252 (Dec.) 1947

Aerial Mapping in Malaria Control. C. C. Kiker and P. Morris.—p. 219.
*Potentialities of Transportation of Exotic Anophelines by Airplane. A. Miller, R. W. Burgess and S. J. Carpenter.—p. 227.
Transmission of Plasmodium Gallinaceum by Anopheles Quadrimaculatus. V. H. Haas and H. Akins.—p. 244.
Metabolism of Cinchonine in Dogs and In Man. J. C. Andrews and W. E. Cornatzer.—p. 246.

Transportation of Exotic Anophelines by Airplane.—The possibilities of aeronautic transportation of mosquito vectors of disease has been appreciated, according to Miller and his co-workers, for about twenty years. International quarantine regulations of 1933 and 1944 include measures to combat this danger. Analysis of the records of inspections at Miami, Brownsville and New Orleans during the past three years indicates that about 6 per cent of inspected planes harbored mosquitoes. If those recovered are regarded as representing 10 per cent of the mosquitoes actually present, conformable published data of one year provide transportation-rate indexes per one hundred planes of about 1 exotic mosquito and 0.3 to 0.6 exotic anophelines; if 11 per cent of these were alive, these rates indicate a hypothetic maximum of 10 to 20 viable exotic specimens of Anopheles in thirty thousand planes. The chances for a yearly importation of this magnitude to result in implantation of new anopheline species in the United States seem slight, in view of the many factors that can be expected to militate against their effective establishment. Despite the theoretically small chance of significant importation of exotic species, prudence and past experience require that quarantine precautions be maintained by mosquito control around airports, disinsectization of planes with improved methods and routine surveillance of exposed areas to detect incipient breeding of imported anophelines.

Journal Pharmacology & Exper. Therap., Baltimore

91:307-402 (Dec.) 1947. **Partial Index**

Effect of Ascorbic Acid in Reducing Inhibition of Brain Metabolism Produced by Pentobarbital in Vitro. Margaret E. Greig.—p. 317.
*Role of Liver in Detoxication of Thiopental (Pentothal) and Two Other Thio-Barbitu rates. F. E. Shideman, A. R. Kelly and B. J. Adams. —p. 331.
Effects of Chronic DDT Intoxication in Rats on Lipids and Other Constituents of Liver. H. P. Sarett and B. J. Jandorf.—p. 340.
Studies of Mechanisms of Liver and Kidney Injury: III. Methionine Protects Against Damage Produced in Rat by Diets Containing Pyridine. J. H. Baxter.—p. 345.
Effect of Nikethamide on Coronary Blood Flow and Cardiac Oxygen Metabolism. J. E. Eckenhoff and J. H. Hafkenschiel.—p. 362.
Benzoylcholine and Atropine Esterases. S. Ellis.—p. 370.
Comparative Effects of Atabrine and of Streptomycin on Experimental Tuberculosis in Guinea Pig. A. G. Karlson, W. H. Feldman and H. L. Mason.—p. 379.
Toxicology of 1,2-Dichloroethane (Ethylene Dichloride): IV. Its Detoxication by l-Cystine, dl-Methionine and Certain Other Sulfur Containing Compounds. L. A. Heppel, Virginia T. Porterfield and N. E. Sharpless.—p. 385.

Hepatic Destruction of "Pentothal."—Shideman and his collaborators say that prior to 1940 it was assumed that "pentothal" was degraded primarily in the liver, but studies carried out after that seemed to indicate that the liver is not of outstanding importance in the inactivation of this drug. This lack of harmony induced the authors to use various in vivo and in vitro technics to determine whether or not the liver degrades "pentothal" and two other thiobarbiturates. In mice they found that hepatic damage due to carbon tetrachloride significantly prolonged the duration of effect of "pentothal sodium" and two other thiobarbiturates. Subtotal hepatectomy in rats produced a significant prolongation of the duration of action of "pentothal." Diminished blood flow through the liver, as produced by the Eck fistula technic in rats, increased the duration of action of "pentothal" and the two other thiobarbiturates tested. "Pentothal" was degraded in vitro by slices and minced portions of rat liver.

Missouri State Medical Assn. Journal, St. Louis

45:3-72 (Jan.) 1948

Carcinoma of Breast: Its Present Status. E. D. Sugarbaker and H. M. Wiley.—p. 17.
6-N-Propyl-Thiouracil in Treatment of Hyperthyroidism: Preliminary Report. D. L. Sexton and J. P. Murphy.—p. 22.
*Bismuth Therapy of Verrucae: Oral Administration of Sodium Bismuth Triglycollamate (Bistrimate Tablets). W. B. O'Connor and D. C. Tweedall.—p. 25.
Hyperparathyroidism: Summary of Important Findings in Ten Year Study of Case. E. P. Heller.—p. 26.
Mistaken Diagnoses of Tuberculosis. R. H. Kaplan and L. Levin.—p. 29.

Bismuth Therapy of Verrucae.—O'Connor and Tweedall employed oral administration of sodium bismuth triglycollamate ("bistrimate tablets") in the treatment of 14 patients with verrucae. The drug was administered after meals. Each tablet contained 410 mg. of sodium bismuth triglycollamate equivalent to 75 mg. of metallic bismuth. The dose varied from a minimum of three tablets to nine tablets daily. The case histories indicate that medication was continued for three weeks or longer. Eight of the 14 patients were completely cured, in that the multiple verrucae disappeared without trace; 4 patients showed improvement, and 2 did not manifest improvement. In 2 cases it was necessary to withdraw the drug because of intolerance. However, in 1 of these the verrucae disappeared entirely two weeks after cessation of therapy and in the other there was definite improvement at the time the drug was stopped.

V 13
1948

Book Notices

Headache. By Louis G. Moench, M.D., Assistant Clinical Professor of Medicine, University of Utah School of Medicine, Salt Lake City. Cloth. Price, $3.50. Pp. 207, with 58 illustrations. The Year Book Publishers, Inc., 304 S. Dearborn St., Chicago 4, 1947.

This small book is well organized and the subject matter is discussed in an orderly manner. There are ten chapters, all of which are rather short but comprehensive. The author draws freely on the experience of others and at the end of each chapter includes a well-selected bibliography. It would appear that a single bibliography at the end of the book would have avoided needless repetition of references. In chapter 1 the pathologic anatomy and physiology of headaches is discussed in simple terms. The mechanism of headache is made to appear rather simple. This may be true at times, but frequently in clinical work the mechanism of a given headache is difficult to demonstrate. In the succeeding chapters the author considers headaches from intracranial pathology, cranial nerve neuralgias, headache of ocular origin, headache of nasal origin and so forth. The final chapter deals with headache of emotional origin. This important chapter is well written, but in keeping with the size of the book it is all too short. In the discussion of headaches occurring after spinal puncture, the author calls attention to the fact that patients who are permitted to be up and about after the spinal puncture are less likely to have headaches than those confined to bed for twenty-four hours. In the discussion of meningitis several reports of cases are reviewed, which add little to the discussion of the subject of headaches or to the treatment of meningitis. Post-traumatic headache is given but limited space. The suggestion that neostigmine is helpful in treatment of post-traumatic headaches is not always borne out by clinical experience. Cervical arthritis as a cause of early morning headache may be somewhat overemphasized. No special mention is made of temporal arteritis as a cause of headache. The author has condensed in some two hundred pages a satisfactory review of the subject of headaches, and one may well recommend the book to medical students and physicians.

Contribuição para o estudo hematológico e clínico da anemia perniciosa (moléstia de Addison-Biermer). Por Miech el Abu Jamra. Tese apresentada à Faculdade de medicina da Universidade de São Paulo para o concurso de docência-livre. São Paulo. Paper. Pp. 316, with 34 illustrations. Emprêsa gráfica da "Revista dos Tribunais," Ltda., São Paulo, 1947.

The greatest value of this monograph on pernicious anemia lies in the completeness with which the author has reviewed the present knowledge of the subject. The bibliography is remarkably complete and will be of value to all workers in the field. The monograph opens with a detailed consideration of the pathogenetic mechanisms of anemia and a suggested new classification which seems to offer no advantages over the etiologic classification already in use for many years. Important stress, however, is laid on the constitutional and nutritive aspects of the etiology of pernicious anemia. The author has suggested subdivisions of the disease according to the predominance of anemic, gastrointestinal or neurologic symptoms and signs. This emphasis seems unwarranted except to draw attention to the occasional case of combined system disease with little or no anemia. Studies of the urine of normal and pernicious anemia patients for antianemic activity were negative. The evidences for the maturing effect of the antipernicious anemia principle on megaloblastic marrow are reviewed. The theory that the excess bilirubin and urobilinogen comes from material incompletely synthesized into hemoglobin rather than from hemolysis and hemoglobin breakdown is supported. Studies on changes in plasma proteins and blood volume before and after therapy are reported and discussed. Alterations in the gastrointestinal secretions and bacterial flora and the sequelae of these changes are described in detail. The revival and extension of some of the pre-liver treatment theories is timely in view of certain evidences that such changes may play a role in producing megaloblastic anemia, e. g., the pernicious anemia-like picture occurring in association with multiple intestinal stenoses, the experimental production in animals on deficient diet that are given indole of an anemia which responds to liver extract. The extensive way in which the field of knowledge of pernicious anemia and related states is covered makes this monograph a most useful reference book on the subject. Unfortunately, owing to the rapid expansion of knowledge of folic acid, most of the more recent developments have taken place since the monograph was published. However, as the literature on the subject is confusing and had not led to satisfactory explanations of the mode of action of folic acid and its relationship to liver extract, this lack is not serious and does not detract from the merits of the book.

Elcetrocardiografía clínica con estudio de derivaciones unipolares. Por el Dr. Sergio Alvarez Mena, Instructor de la Facultad de medicina, Habana. Fabrikold. Price, $10. Pp. 368, with 240 illustrations. M. V. Fresneda (Editor). Neptuno 561, La Habana, Cuba, 1947.

The author bases his textbook primarily on the concepts of F. N. Wilson and D. Sodi Pallares, to whom the book is dedicated. A short outline is given of cardiac anatomy and physiology, and the fundamentals of electrophysiology are discussed. "Unipolar" leads and the electrical axis are dealt with in great detail, the ventricular gradient is taken up in a special chapter, and the second half of the book is devoted to the arrhythmias and to clinical electrocardiography. Unfortunately, in some illustrations the tracings are mounted upside down; in other figures, shown for the demonstration of arrhythmias, much longer strips should be presented. Definite misinterpretations can be found, like that of a premature systole of sinus origin in figure 92 and of paroxysmal ventricular tachycardia in figure 139, the latter obviously an artefact; flutter with supposedly 3:1 auriculoventricular conduction is shown in figure 107; figure 96 is described as normal sinus rhythm, yet it shows an auricular tachycardia with 2:1 block. It is not clear why the author classifies premature systoles with inverted P waves and shortened PR interval as auricular premature systoles and not as auriculoventricular nodal in origin. The book is modern in its approach, and the author is familiar with the recent contributions to electrocardiography by American authors. It is to be hoped that the next edition will show the necessary corrections and some additional illustrations to make this volume a valuable book for the student of electrocardiography.

La pathogénie des altérations électrocardiographiques de la péricardite: Etude clinique et expérimentale. Por Eduardo Coelho, professeur à la Faculté de médecine de Lisbonne, Lisbonne. Conférence proférée à l'Académie suisse des sciences médicales (Zurich). Paper. Pp. 74, with 38 illustrations. The Author, Lisbon, 1947.

This monograph is based on the experience of the author with 138 cases of acute and chronic pericarditis (constrictive and nonconstrictive) of various etiology. It excludes the pericarditis associated with stenocardia. It analyzes the electrocardiographic data before and after operation. In 6 cases histologic examination of the myocardium was made at necropsy. The author refers to but does not document his results with experimental pericarditis, local and generalized, in dogs and monkeys. On the basis of these observations the author concludes that the mechanism for the electrocardiographic alterations is due to bioelectrical changes in the epicardium. In the 6 cases examined by the author he found no evidence of histologic changes in the subepicardial myocardium. He reports that in animals injury within the myocardium does not cause changes in the electrocardiogram, whereas injury at the surface does. It is well known, as the author found, that myocardial damage not surfacing on the epicardium (or endocardium) causes no injury currents, but it is difficult to see how injury of the lining of the heart, the epicardium, can. It is generally agreed that injury of the myocardium which surfaces on the epicardium is the primary cause of the injury effect seen in the electrocardiogram in pericarditis. It is apparent that injury effects may be present in the subepicardium which cannot be demonstrated histologically. Therefore, the evidence presented does not exclude this possibility. The author presents an adequate review of the literature and is familiar with the work of others. It is regrettable, however, that he did not include a bibliography.

Physiology of Man in the Desert. By E. F. Adolph and associates. Monographs in the Physiological Sciences. Cloth. Price, $6.50. Pp. 357, with illustrations. Interscience Publishers, Inc., 215 Fourth Ave., New York 3, 1947.

This volume is a comprehensive report of the investigations done by the Rochester Desert Unit during the period from 1942 through 1945. Incidentally, it is also the first volume in the series entitled "Monographs in the Physiological Sciences" sponsored by an editorial board of distinguished physiologists. The studies were conducted in the Colorado desert in California and in the Desert Laboratory at the University of Rochester. In the course of the presentation the entire subject of heat regulation and water balance is outlined and discussed in a clear fashion. The material is well integrated in spite of the fact that the chapters were written by a number of different contributors. Sweat formation, dehydration and water requirements, thirst, circulation and blood changes during water deprivation are extensively considered. Many important practical conclusions are drawn; a complete list of specific instructions in regard to food, shelter, clothing and water are presented and their physiologic rationale is given. This book is remarkable for its correlation of practical and theoretic aspects of the subject; its contents should be of interest to the research scientist, the physician and the climatologist. These studies are a good example of the important basic physiologic knowledge that can come out of the solution of practical problems.

Der Myokardinfarkt: Erkennung, Behandlung und Verhütung. Von Professor Dr. Max Hochrein, Direktor der Medizinischen Universitätspoliklinik Leipzig, Leipzig. Band I, Kreislauf-Bücherei, herausgegeben in Verbindung mit der Deutschen Gesellschaft für Kreislaufforschung. Third edition. Paper. Pp. 387, with 82 illustrations. Theodor Steinkopff Verlagsbuchhandlung, Einbaumstrasse 2, Frankfurt am Main-Griesheim, 1945.

This third edition summarizes the author's experiences and is based on over 700 personal cases of myocardial infarction. The reviewer has not seen the second edition, which appeared in 1941, but on comparing this edition with the first, it is apparent that the entire subject has been greatly expanded, this edition being double the size of the first. The book is taken up primarily with a consideration of the clinical aspects of this condition, the experimental background having been abbreviated as the author's own experimental experiences have dimmed and as his interest has become more and more clinical. This edition was written during the war with its inevitable handicaps. The literature is carried through to 1941, but the American and English publications which appeared during the war and which contributed greatly to the subject are not covered. This leads to obvious defects. The presentation of the electrocardiogram is inadequate and not commensurate with present standards in this country. It is hoped that when the fourth edition appears these defects will be remedied.

Deep Analysis: The Clinical Study of an Individual Case. By Charles Berg, M.D., D.P.M., Physician to the British Hospital for Functional Mental and Nervous Disorders, London. Cloth. Price, $3.50. Pp. 254 W. W. Norton & Co., Inc., 101 Fifth Ave., New York 3, 1947.

This book is a highly illuminating description of a complete psychoanalysis of a single case. The patient under analysis, who subsequently attained a position of national eminence in England, did not present himself with any especial symptoms but because of a deeply felt dissatisfaction with his own mode of life. However, Dr. Berg only too quickly during the course of the analysis was able to point out that under the cloak of normality this man concealed all the ingredients of every psychopathologic formation and mechanism including frigidity, impotence, hysteria, obsession and even paranoia and schizophrenia. The uncovering of these phenomena provided the author with an excellent opportunity to discuss lucidly these aberrations from a theoretic point of view. Many will disagree with the author on his method and some of the technics applied, but the analysis was handled in a masterly fashion. His theoretic discussion as well as the manner of the unfolding of the case will be instructive to every student of psychoanalysis. The nonpsychiatric physician will find the book fascinating.

Massage and Remedial Exercises in Medical and Surgical Conditions. By Noel M. Tidy. Seventh edition. Cloth. Price, $6. Pp. 480, with 190 illustrations. William Wood & Co., Mount Royal and Guilford Aves., Baltimore 2, 1947.

This book, written by a physical therapist for physical therapists in Great Britain, has had seven editions since 1932. Its well merited success is due to a broad and conservative presentation of the subject matter, which has grown to impressive proportions in successive editions. Each of the twenty-three chapters includes an adequate discussion of pathology, symptomatology and general medical treatment, followed by a full presentation of all forms of physical treatment. This is quite different from the run-of-the mill books on massage. Almost two hundred illustrations and a full index add to the usefulness of the volume, which has been serving as chief guide for the examinations of the Chartered Society of Masseurs and Medical Gymnasts. Physical therapists trained on the level of this book should become invaluable technical assistants indeed to the medical profession.

Endocrinologia sexual femenina. Par Carlos J. Calatroni, docente libre de clinica ginecológica, Buenos Aires, Vicente Ruiz, jefe del Serv. de ginecología del H. español, Buenos Aires, y Guillermo di Paola, docente libre de Clinica ginecológica, Buenos Aires. Prólogo del Profesor Dr. Bernardo A. Houssay. Cloth. Price, 68 pesos. Pp. 724, with illustrations. Libreria y Editorial "El Ateneo," Florida 340, Córdoba 2099, Buenos Aires, 1947.

This book is printed on enamel paper and many of the illustrations are reproduced in color. Luis Seoane's sixteen modernistic drawings are an unusual feature. Since endocrinology has revolutionized gynecology in the past twenty-five years, the aim of this book is to affirm fundamental principles of diagnosis and treatment. Dr. Houssay states in the prologue that the authors have had ample clinical and laboratory experience to enable them to give a clear, critical, up-to-date review of endocrine physiology, pathology and therapy in the female.

The authors believe that excessive brevity conspires against clarity of presentation. The book is divided into three sections. Part I is a description of the embryology, anatomy and physiology of the female in intrauterine life, childhood, adolescence, the period of sexual maturity and the menopause. The various somatic modifications are stressed. Three types of sexual cycles are outlined, namely, the diphasic, triphasic and monophasic. A chapter is devoted to anomalies of the diphasic cycle. This section of the book contains interesting clinical material and is well illustrated by photomicrographs, diagrams and photographs of patients. Treatment is given in detail, including tables of commercial drugs and their equivalents. Part II is concerned with the physiology of the hypophysis, the chorioplacental system, the suprarenals and the thyroid as they affect the female. Part III is devoted to the female sex hormones, i. e., gonadotropins, prolactin, estrogens and progesterone, with indications and contraindications for their use. There is an appendix of miscellaneous terse quotations and an index.

This book, because of its clarity of arrangement and illustrations, is easy to understand even though the potential reader may not be familiar with the Spanish language.

Fundamentals of Psychiatry. By Edward A. Strecker, M.D., Sc.D., LL.D., Professor of Psychiatry and Chairman of the Department, Undergraduate and Graduate Schools of Medicine, University of Pennsylvania, Philadelphia. Fourth edition. Cloth. Price, $4. Pp. 325, with 21 illustrations. J. B. Lippincott Co., 227-231 S. Sixth St., Philadelphia 5, 1947.

This is a small compendium describing, in easily understandable language, the basic fundamentals of psychiatry. The author emphasizes the relation between internal medicine and psychiatry, and for this reason this manual is good for students, general practitioners, nurses and psychiatric social service workers. This manual is a useful and accurate summary of psychiatry.

V 13
1948

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

SULFAMERAZINE

To the Editor:—I have reviewed the literature which has appeared in *The Journal* during the past four years on sulfamerazine. 1. Are the blood levels of sulfamerazine and sulfadiazine comparable, or does the fact that nearly twice as much sulfamerazine is bound to proteins mean that it is half as effective when comparing equal concentrations of the two drugs? 2. Does concentration of sulfamerazine in the spinal fluid equal 50 per cent or 80 per cent of the plasma concentration? 3. Should a urine alkalinizer be used with sulfamerazine? 4. What is the accepted dose in children? 5. What is the status of the drug as far as the other sulfonamide compounds are concerned?

M.D., Indiana.

ANSWER.—The whole blood levels of sulfamerazine and sulfadiazine are not strictly comparable for two reasons.

1. Sulfamerazine enters the red cells in low concentration (25 per cent), while sulfadiazine does so easily. Thus blood levels (determined by the usual whole blood method) indicating as much sulfamerazine as sulfadiazine represent plasma levels containing more of the former drug.

2. About twice as much sulfamerazine has been found under certain conditions to be bound to plasma proteins as sulfadiazine. However, the actual percentage of each drug bound is dependent on several factors: first, the most important being the actual concentration of the drug since the percentage bound decreases as the total concentration increases; second, the blood protein level itself is important in determining the degree of binding. As can be seen arithmetically, the actual percentage bound is important and this varies with the level being considered. Therefore, because of the several factors involved, it is difficult to state exactly the meaning of relative blood levels, except that it appears probable that higher whole blood concentrations of sulfamerazine than of sulfadiazine are needed to have equal therapeutic activity, since such activity has been shown to depend solely on the unbound drug.

The spinal fluid concentration of sulfamerazine in relation to its plasma concentration is again variable. However, in cases of meningitis the spinal fluid level is about 50 per cent of the whole blood level (somewhat under 50 per cent of the plasma level). In patients without meningeal inflammation the spinal fluid concentration is nearer 25 per cent of the whole blood concentration.

Attempt should be made to alkalinize the urine when using sulfamerazine. There is no one accepted dose in children, but the dose usually used is the same as for sulfadiazine—0.05 Gm. per pound per twenty-four hours.

Sulfamerazine is an alternate drug of choice to sulfadiazine. It is probably best used to try to avoid reactions when sulfadiazine has previously been administered. Because of poorer penetration into the spinal fluid, it may not be as effective in the treatment of meningitis. Sulfadiazine may be somewhat superior in infections with Klebsiella organisms and in bacillary dysentery.

GRAY HAIR IN CHILDREN

To the Editor:—What causes gray hair during adolescence? What are effective therapeutic agents in treatment?

T. D. Lee, M.D., Portland, Ore.

ANSWER.—Gray hair in young children and adolescents is uncommon. One patient developed iron gray hair at 5 years of age. He grew up, went through college, played football and engaged in other sports, but the iron gray hair persisted. Therapeutic agents of benefit are not known. The vitamin calcium pantothenate will change the color of hair in animals but it has no effect on man.

SMALLPOX VACCINATION

To the Editor:—Are there reports of congenital malformations or miscarriage attributable to smallpox vaccination during pregnancy? If the mother has not been previously immunized, is vaccination of the mother during the puerperium contraindicated?

Captain, M.C., U. S. Army.

ANSWER.—Congenital malformations or miscarriage apparently cannot be attributed justly to smallpox vaccination during pregnancy. There is no contraindication to vaccinating the mother during the puerperium, if she has been exposed to smallpox.

COLOMBIAN EPIDEMIC

To the Editor:—Please give me information on the diagnosis and treatment of an epidemic disease which prevails in a large territory of a rural zone of Colombia. This epidemic appeared in a group of villages which form one of the zones of coffee plantations about 50 kilometers from Cucuta city. The villages are about 1,500 meters above sea level. The villagers are frequently unclean and have body lice. Ticks abound. The houses are made of straw. The disease has attacked persons of every age and condition.

The first 4 cases were fatal within twenty-four hours. One case is followed by several in a family. The disease begins suddenly with chills followed by high fever, which remits slightly during the eight to fifteen days of its duration. Within six to twelve hours after the onset petechial spots appear on the feet, legs and arms, a few on the trunk and none on the face. The petechiae are dark in color with polycyclic borders and about 1 cm. in diameter. They may be abundant or scanty. There is a sensation of local burning. One of the patients presented the rash twice with an interval of four days.

Photophobia, conjunctival injection, typhus tongue, somnolence in some cases, moderate splenomegaly and serous effusion in the elbow and wrist joints, which spontaneously reabsorbs in a few days, also occur. Articular fluid is scanty, forearms are held in flexion and legs in extension. Moderate headache, vomiting, peribuccal herpes, congestion of the lungs and cough also occur. Arterial tension averages 110 mm. systolic and 60 to 70 mm. diastolic; the pulse rate is 120 a minute. Reflexes are exaggerated.

There are also polymorphonuclear leukocytosis, moderate eosinophilia, anemia, urobilinuria and negative Weil-Felix and Widal reactions. Subcutaneous inoculation with a sample of the liver, suspected of Rickettsia, in 2 guinea pigs produced no effect on the animals. Smears and cultures for Clostridium chauvoei and for hematozoic parasites gave negative results. Microscopic studies for Rickettsia were not carried out. The patients had 3 Gm. daily of para-aminobenzoic acid. Some patients had a moderate remission; in others the drug had no effect. The population has had vaccine for prevention of exanthematic typhus. Please suggest additional diagnostic methods.

Benjamin Rojas Pacheco, M.D., Cucuta, Colombia.

ANSWER.—The clinical symptoms of the patients and the epidemiologic information, plus the known existence of rickettsial diseases in Colombia, justify the suspicion of an epidemic of typhus in the Cucuta area.

However, the epidemiologic studies and clinical symptoms together with a negative Weil-Felix suggest meningococcemia caused by one of the four types or groups of meningococci, Neisseria intracellularis.

Extensive meningococcic epidemics with high fatality have been reported in some areas of South America. Fulminating cases with signs of collapse and shock from the onset are occasionally observed in meningococcic infections. The neurologic symptoms reported from Cucuta do not indicate extensive infection of the meninges, but deaths associated with severe adrenal hemorrhages have occurred within less than twenty-four hours in other places with little or no extension of infection to the meninges.

The disease most frequently attacks the young, but persons of any age or condition are susceptible. The onset is usually sudden with chills, high fever (often with remissions), headache, nausea, vomiting, meningeal irritation and frequently petechial cutaneous lesions which are variable in appearance and distribution. Peribuccal herpes are frequently observed. Ocular symptoms, including conjunctivitis, and involvement of the nose and throat, pharynx and lungs may occur. Lobar or bronchial pneumonia has been observed frequently as a complication in some outbreaks. The tongue may have the appearance seen in typhus. The spleen is usually enlarged in acute cases. Frequently there is constipation. Arthritis, some with serous or purulent exudation, has been reported to be the most frequent complication in some epidemics. Leukocytosis in most cases remains constant.

Positive microscopic and cultural examinations of the spinal fluid and blood will confirm the diagnosis. Cultures should be made of material from the nasopharynx of patients and suspected carriers.

Rickettsial complement fixation and agglutination reactions should be continued for confirmation or ruling out of the rickettsial diseases.

In order to investigate the possibility of other diseases, epidemiologic studies should be intensified, detailed recordings of clinical data should be continued and thorough blood examinations and other laboratory studies should be made

INTOXICATION

To the Editor:—Will a person who takes concentrated alcoholic drinks become intoxicated sooner than one who takes diluted alcoholic drinks, assuming that the time interval and total alcoholic intake is the same?

M.D., Illinois

ANSWER.—When fairly large doses of alcohol are ingested e. g., 55 cc. absolute alcohol, the maximum blood alcohol concentration occurs with a 30 per cent aqueous dilution of the ingested alcohol. Greater or lower concentrations of ingested alcohol cause lower maximum concentrations in the blood (Lolli.

G., and Rubin, M.: *Quart. J. Stud. on Alcohol* **4**:360, 1943). The intoxicating effect of alcohol increases with rising concentrations of the same amount of alcohol and then decreases with further concentration. The slower absorption of alcohol with higher concentrations is probably the result of damage to the gastric mucosa. Newman and Abramson (*ibid.* **3**:361, 1942) administered the same amount of alcohol as Scotch whisky and California port wine. The blood alcohol curve for the whisky showed a peak in one hour, but the peak from the wine was much lower and occurred in two hours. The intoxicating effect of the wine was correspondingly lower than that of the whisky. When sugar was added to the distilled liquor, there was no difference in the action of the whisky and the wine. The presence of food in the stomach and of buffers in the beverage are important factors in the intoxicating effects of alcohol.

PYODERMA OR "JUNGLE ROT"

To the Editor:—**A man aged 30 contracted "jungle rot" of the hypothenar eminence of the palm. Treatment included antibiotics, salicylic acid, coal tar and mercurial antiseptics without relief. Finally it responded to a full dose of roentgen therapy two years ago. The same condition has now recurred in the same location and is spreading. What other therapeutic agents are suggested? Can the course of roentgen therapy be repeated?**

M.D., New York.

ANSWER.—"Jungle rot" is not a clinical entity. It is a term used by the men in the armed services in the South Pacific for a number of cutaneous diseases, usually pyoderms. Most cases were irritant dermatitis or fungous disease which had become secondarily infected with pyogenic organisms. Ecthyma, diphtheritic lesions and traumatic ulcers were also part of the inclusive term, jungle rot.

The lesions on the palms might be ringworm, particularly the id type from a focus of dermatophytosis on the feet; psoriasis, either the dry or pustular type, or the entity known either as recalcitrant eruption or pustular bacterid. The latter is more likely to be strikingly symmetric on the thenar eminences and consists of pinhead-sized pustules in the epidermis which dry in situ to leave small brown scabs. Contact dermatitis, a fixed drug eruption or sensitization to a food might also account for the eruption.

Eczematoid ringworm is the disease most frequently encountered. Treatment depends a good deal on the character of the lesions. If they are vesicular, relief can be obtained from cool wet packs of aluminum subacetate in 0.5 per cent solution. If there are scaly patches, an ointment containing salicylic acid and benzoic acid in dilute form is usually effective. The ointment should be applied also to any focus of ringworm that is present in the toes, particularly in the interspaces. For eczematous patches, a preparation containing tar may be useful.

If topical measures fail to effect the desired improvement, it is likely that after an interval of two years more roentgen therapy would be useful. It is assumed, of course, that the skin shows no evidence of damage from roentgen rays.

VISUAL ACUITY

To the Editor:—**A patient has vision of 10/100 in his right eye, which corrects to 20/40, and vision of 3/100 in his left eye, which corrects to 15/100. What is the percentage of loss of vision in his left eye?**

He has a small scar over half of the pupil of his left eye, as a result of ulcer following injury by a foreign body; otherwise his eye seems perfectly normal. What test is recommended to determine malingering?

W. C. Behen, M.D., Lansing, Mich.

ANSWER.—Vision of 15/200 represents a loss of 63.4 per cent of visual efficiency for distance. Distant vision is, however, but one element in the determination of ocular efficiency. The amount of disability is computed by obtaining the product of efficiency value of central visual acuity (average of near and far), the field of vision and muscular function. A standard method for the appraisal of loss of visual efficiency was adopted by the Section on Ophthalmology in 1926 and modified in 1940 (*Tr. Sect. Ophth., A. M. A.*, 1941, pp. 329-337), but standards vary considerably from state to state.

No specific test may be recommended to expose simulated defective vision, and the examiner's patience and ingenuity may be extended to the utmost before the fraud is exposed. The tests depend in general on (1) varying the size of the visual angle subtented by the test letter and (2) determining the vision with both eyes of the patient open but with the patient using only the "poorer" eye, the vision of the opposite eye being suppressed by means of prisms, mirrors, polaroid disks, colored lenses and test letters, or instruments, several of which have been devised to uncover malingering. There is a good discussion of the tests and their application by M. A. Lasky (Simulated Blindness, *Arch. Ophth.* **35**: 1038, 1941).

VASECTOMY

To the Editor:—**How long a period of time must elapse following vasectomy before the patient can be certain of being absolutely sterile? Should microscopic examination of the seminal fluid be done before assuring the patient that he is sterile?**

Glenn T. Howard, M.D., Pearsall, Texas.

ANSWER.—Following vasectomy one month should elapse before a specimen of seminal fluid is examined for the presence of sperms. If sperms are found, the examination should be repeated in another thirty days. Obviously, the patient may not be assured of his sterility until the seminal fluid is free of sperms. Recanalization is unusual following a properly performed vasectomy, in which the cut ends of the vas are doubled back and tied. Interposition of the scrotal tissues is also desirable in preventing recanalization.

DR. RUSKIN'S THEORY AND TREATMENT

To the Editor:—**One of my patients, whose disease has been diagnosed as ruptured intervertebral disk, has found his way to Dr. Simon L. Ruskin of New York. Dr. Ruskin has a novel form of treatment as outlined in an article, "The Control of Muscle Spasm and Arthritic Pain Through Sympathetic Block at the Nasal Ganglion and the use of the Adenylic Nucleotide; Contributions to Physiology of Muscle Metabolism," which appeared in the *American Journal of Digestive Diseases* (13: 311-320 Oct. 1946). There are numerous favorable case reports in the article Please inform me as to the efficacy of this form of therapy.**

Sidney B. Meltz, Richmond Hill, N. Y.

ANSWER.—Ruskin's treatment is based on a rather complicated theory. He proposes that "the underlying biochemistry of contractile elements which would characterize all muscle spasm (of both smooth and striated muscle) would tend to be the same." A "reflex neurogenic factor in muscle spasm" is also postulated. Ruskin sees a close relationship between such conditions as acute and chronic arthritic pain, hypertension, coronary artery spasm migraine, menstrual pains and ureteral colic, in all of which conditions his treatment presumably is indicated and is equally successful. Anesthetization of a sympathetic nerve center (the sphenopalatine ganglion) is said to be "followed by immediate generalized relaxation of muscle spasm, not only of smooth muscle such as the arterial tree but of striated skeletal and syncitial cardiac muscle."

According to Ruskin, he began these studies in 1924 and has treated patients "numbered in the thousands." Despite a quarter-century of such studies and the supposed "dramatic nature of the results," this and a companion paper appear to be his first reports on the treatment as applied to arthritis, and confirmatory work by others has not yet appeared. Fifty representative cases were reported in such meager detail that the reader cannot form independent opinion as to diagnosis. The clinical diagnoses were couched in such vague terms as "chronic arthritis," "rheumatic arthritis," "lumbosacral spasm (sacro-iliac)" and "muscle tonus disturbance." Roentgenographic reports were usually absent and roentgenographic illustrations or photographs of end results were not presented.

Success in treatment was claimed in about every case (except for 1 patient who later was found to have a protruded intervertebral disk), but the length of the follow-up time usually was much too short (sometimes as short as two weeks) for one to be able to express an opinion as to the final outcome.

The treatment combined three procedures: sympathetic block at the nasal ganglion, the intramuscular injection of ferrous adenylate into one buttock and calcium ascorbate into the other buttock. No control studies on the effect of any one of these procedures used alone were reported. The statement was simply made that "without spheno-palatine ganglion block neither the adenylate nor the calcium ascorbate relieved the spastic state."

ACTINOMYCOSIS

To the Editor:—**In *The Journal*, Dec. 13, 1947 under Queries and Minor Notes, in answer to a question about the latest treatment for actinomycosis nothing is said of the use of thymol, which has apparently had good effect in the few cases where it has been given a fair trial. Please refer to "Thymol Therapy in Actinomycosis" by H. B. Myers, (*The Journal*, May 29, 1937, p. 1875) in which this pharmacologist details recoveries in 5 of 6 cases treated; also see "Pulmonary Actinomycosis. Recovery after Thymol Therapy" by Etter and Schumacher (*The Journal*, Sept. 9, 1939, p. 1023), in which perfect recovery ensued after adequate doses of thymol. As detailed in our report, extensive pulmonary lesions cleared completely as demonstrated by roentgen ray after the administration of 2 Gm. thymol by mouth daily for seventeen days. To my personal knowledge this man has remained well for eight years. He showed absolutely no response to massive doses of iodides and roentgen therapy. Because of the excellent results achieved by Myers and because of the spectacular recovery in our case it is my opinion that thymol should at least be mentioned as meriting a trial in such an otherwise almost hopeless condition.**

Lewis E. Etter, M.D., Warrendale, Pa.

V 13
1948